Service Manual

Model : GX300

Internal Use Only

Service Manual

GX300

Date: May, 2010 / Issue 1.0

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1. INTRODUCTION

1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it.

The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated  **by the sign. Following information is ESD handling:**

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current – Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIB	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 H/W Features

Item	Feature	Comment
Standard Battery	Lithium-ion r, 3.7V, 1,500mAh	
Stand by TIME	Up to 370 hrs (Paging Period 5, RSSI -85dBm)	
Talk time	Up to 200min : GSM Tx Level 7	
Charging time	Approx. 4 hours	
RX Sensitivity	GSM, EGSM: -109dBm, DCS: -109dBm	
TX output power	GSM, EGSM: 33dBm(Level 5), DCS , PCS: 30dBm(Level 0)	
GPRS compatibility	Class 12	
SIM card type	3V Small	
Display	MAIN : 2.2" TFT 176 × 220 pixel 262K Color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down Left/Right Navigation Key Send Key, PWR Key ,Soft Key(Left/Right) Volume up/down, Camera hot key, SIM switch key	
ANT	Internal	
EAR Phone Jack	Yes	
PC Synchronization	Yes	
Speech coding	EFR/FR/HR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Loud Speaker	Yes	
Voice Recoding	Yes	
Microphone	Yes	

2. PERFORMANCE

Item	Feature	Comment
Speaker/Receiver	18x12Φ Speaker/ Receiver	
Travel Adapter	Yes	
MIDI	SW MIDI (Mono SPK)	
Camera	2M	
Bluetooth / FM Radio	Bluetooth version 2.1 / 76~108MHz supported	

2.2 Technical Specification

<table>
<tr><th>Item</th><th>Description</th><th>Specification</th></tr>
<tr><td>1</td><td>Frequency Band</td><td>EGSM
TX: 880 ~ 915MHz
RX: 925 ~ 960 MHz
DCS
TX: 1710 ~ 1785 MHz
RX: 1805 ~ 1880 MHz
PCS
TX: 1850 ~ 1910 MHz
RX: 1930 ~ 1990 MHz</td></tr>
<tr><td>2</td><td>Phase Error</td><td>RMS < 5 degrees
Peak < 20 degrees</td></tr>
<tr><td>3</td><td>Frequency Error</td><td>< 0.1 ppm</td></tr>
<tr><td>4</td><td>Power Level</td><td>
EGSM
<table>
<tr><th>Level</th><th>Power</th><th>Toler.</th><th>Level</th><th>Power</th><th>Toler.</th></tr>
<tr><td>5</td><td>33dBm</td><td>±2dB</td><td>13</td><td>17dBm</td><td>± 3dB</td></tr>
<tr><td>6</td><td>31dBm</td><td>±3dB</td><td>14</td><td>15dBm</td><td>± 3dB</td></tr>
<tr><td>7</td><td>29dBm</td><td>±3dB</td><td>15</td><td>13dBm</td><td>± 3dB</td></tr>
<tr><td>8</td><td>27dBm</td><td>±3dB</td><td>16</td><td>11dBm</td><td>± 5dB</td></tr>
<tr><td>9</td><td>25dBm</td><td>±3dB</td><td>17</td><td>9dBm</td><td>± 5dB</td></tr>
<tr><td>10</td><td>23dBm</td><td>±3dB</td><td>18</td><td>7dBm</td><td>± 5dB</td></tr>
<tr><td>11</td><td>21dBm</td><td>±3dB</td><td>19</td><td>5dBm</td><td>± 5dB</td></tr>
<tr><td>12</td><td>19dBm</td><td>±3dB</td><td></td><td></td><td></td></tr>
</table>
DCS/PCS
<table>
<tr><th>Level</th><th>Power</th><th>Toler.</th><th>Level</th><th>Power</th><th>Toler.</th></tr>
<tr><td>0</td><td>30dBm</td><td>±2dB</td><td>8</td><td>14dBm</td><td>± 3dB</td></tr>
<tr><td>1</td><td>28dBm</td><td>±3dB</td><td>9</td><td>12dBm</td><td>± 4dB</td></tr>
<tr><td>2</td><td>26dBm</td><td>±3dB</td><td>10</td><td>10dBm</td><td>± 4dB</td></tr>
<tr><td>3</td><td>24dBm</td><td>±3dB</td><td>11</td><td>8dBm</td><td>± 4dB</td></tr>
<tr><td>4</td><td>22dBm</td><td>±3dB</td><td>12</td><td>6dBm</td><td>± 4dB</td></tr>
<tr><td>5</td><td>20dBm</td><td>±3dB</td><td>13</td><td>4dBm</td><td>± 4dB</td></tr>
<tr><td>6</td><td>18dBm</td><td>±3dB</td><td>14</td><td>2dBm</td><td>± 5dB</td></tr>
<tr><td>7</td><td>16dBm</td><td>±3dB</td><td>15</td><td>0dBm</td><td>± 5dB</td></tr>
</table>
</td></tr>
</table>

2. PERFORMANCE

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	**EGSM**	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-63
		3,000~ <6,000	-65
		6,000	-71
		DCS/PCS	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-65
		3,000~ <6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	**EGSM**	
		Offset from Carrier (kHz).	Max. dBm
		400	-19
		600	-21
		1,200	-21
		1,800	-24

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="5">6</td><td rowspan="5">Output RF Spectrum
(due to switching
transient)</td><td colspan="3">DCS/PCS</td></tr>
<tr><td colspan="2">Offset from Carrier (kHz).</td><td>Max. dBm</td></tr>
<tr><td colspan="2">400</td><td>-22</td></tr>
<tr><td colspan="2">600</td><td>-24</td></tr>
<tr><td colspan="2">1,200</td><td>-24</td></tr>
<tr><td colspan="2">1,800</td><td>-27</td></tr>
<tr><td>7</td><td>Spurious Emissions</td><td colspan="3">Conduction, Emission Status</td></tr>
<tr><td>8</td><td>Bit Error Ratio</td><td colspan="3">EGSM
BER (Class II) < 2.439% @-102 dBm
DCS,PCS
BER (Class II) < 2.439% @-102 dBm</td></tr>
<tr><td>9</td><td>RX Level Report Accuracy</td><td colspan="3">±3 dB</td></tr>
<tr><td>10</td><td>SLR</td><td colspan="3">8±3 dB</td></tr>
<tr><td rowspan="10">11</td><td rowspan="10">Sending Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>0</td><td>-12</td></tr>
<tr><td>1,000</td><td>0</td><td>-6</td></tr>
<tr><td>2,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,000</td><td>4</td><td>-6</td></tr>
<tr><td>3,400</td><td>4</td><td>-9</td></tr>
<tr><td>4,000</td><td>0</td><td>-</td></tr>
<tr><td>12</td><td>RLR</td><td colspan="3">2±3 dB</td></tr>
</table>

2. PERFORMANCE

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="11">13</td><td rowspan="11">Receiving Response</td><td>Frequency (Hz)</td><td>Max.(dB)</td><td>Min.(dB)</td></tr>
<tr><td>100</td><td>-12</td><td>-</td></tr>
<tr><td>200</td><td>0</td><td>-</td></tr>
<tr><td>300</td><td>2</td><td>-7</td></tr>
<tr><td>500</td><td>*</td><td>-5</td></tr>
<tr><td>1,000</td><td>0</td><td>-5</td></tr>
<tr><td>3,000</td><td>2</td><td>-5</td></tr>
<tr><td>3,400</td><td>2</td><td>-10</td></tr>
<tr><td>4,000</td><td>2</td><td></td></tr>
<tr><td colspan="3">* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.</td></tr>
<tr><td>14</td><td>STMR</td><td colspan="3">18±5 dB</td></tr>
<tr><td>15</td><td>Stability Margin</td><td colspan="3">> 6 dB</td></tr>
<tr><td rowspan="9">16</td><td rowspan="9">Distortion</td><td colspan="2">dB to ARL (dB)</td><td>Level Ratio (dB)</td></tr>
<tr><td colspan="2">-35</td><td>17.5</td></tr>
<tr><td colspan="2">-30</td><td>22.5</td></tr>
<tr><td colspan="2">-20</td><td>30.7</td></tr>
<tr><td colspan="2">-10</td><td>33.3</td></tr>
<tr><td colspan="2">0</td><td>33.7</td></tr>
<tr><td colspan="2">7</td><td>31.7</td></tr>
<tr><td colspan="2">10</td><td>25.5</td></tr>
<tr><td>17</td><td>Side Tone Distortion</td><td colspan="3">Three stage distortion < 10%</td></tr>
<tr><td>18</td><td>System frequency (26 MHz) tolerance</td><td colspan="3">≤ 2.5 ppm</td></tr>
<tr><td>19</td><td>32.768KHz tolerance</td><td colspan="3">≤ 30 ppm</td></tr>
<tr><td>20</td><td>Ringer Volume</td><td colspan="3">At least 65 dBspl under below conditions:
1. Ringer set as ringer.
2. Test distance set as 50 cm</td></tr>
</table>

<table>
<tr><th>Item</th><th>Description</th><th colspan="3">Specification</th></tr>
<tr><td>21</td><td>Charge Current</td><td colspan="3">Fast Charge : Typ. 650 mA
Slow Charge : Typ. 80mA
Total Charging Time : < 4 hours</td></tr>
<tr><td rowspan="8">22</td><td rowspan="8">Antenna Display</td><td>Bar Number</td><td colspan="2">Power</td></tr>
<tr><td>7</td><td colspan="2">-92 Over</td></tr>
<tr><td>7 -> 5</td><td colspan="2">-93 ± 2</td></tr>
<tr><td>5 -> 4</td><td colspan="2">-98 ± 2</td></tr>
<tr><td>4 -> 2</td><td colspan="2">-101 ± 2</td></tr>
<tr><td>2 -> 1</td><td colspan="2">-104 ± 2</td></tr>
<tr><td>1 -> 0</td><td colspan="2">-106 ± 2</td></tr>
<tr><td>0 -> OFF</td><td colspan="2">-106 Under</td></tr>
<tr><td rowspan="5">23</td><td rowspan="5">Battery Indicator</td><td colspan="2">Battery Bar Number</td><td>Voltage</td></tr>
<tr><td colspan="2">3</td><td>≥ 3.77</td></tr>
<tr><td colspan="2">3 -> 2</td><td>3.77 ± 0.05 V</td></tr>
<tr><td colspan="2">2 -> 1</td><td>3.67 ± 0.05 V</td></tr>
<tr><td colspan="2">1 -> 0</td><td>3.60 ± 0.05 V</td></tr>
<tr><td rowspan="2">24</td><td rowspan="2">Low Voltage Warning
(Blinking Bar)</td><td colspan="3">≤ 3.60 ± 0.05V (Call), one time per one minute</td></tr>
<tr><td colspan="3">≤ 3.60 ± 0.05V (Standby), one time per three minute</td></tr>
<tr><td>25</td><td>Forced shut down
Voltage</td><td colspan="3">3.33 ± 0.05V</td></tr>
<tr><td>26</td><td>Sustain RTC
without battery</td><td colspan="3">Over 50 hours</td></tr>
<tr><td>27</td><td>Battery Type</td><td colspan="3">Lithium-Ion Battery
Standard Voltage = 3.7 V
Battery full charge voltage = 4.2 V
Capacity: 1,500mAh</td></tr>
<tr><td>28</td><td>Travel Charger</td><td colspan="3">Switching-mode charger
Input: 100 ~ 240V, 50/60 Hz
Output: 5.1V, 700 mA</td></tr>
</table>

3. TECHNICAL BRIEF

3.1 GX300 Functional Block Diagram

The functional component arrangement is mentioned below diagram.

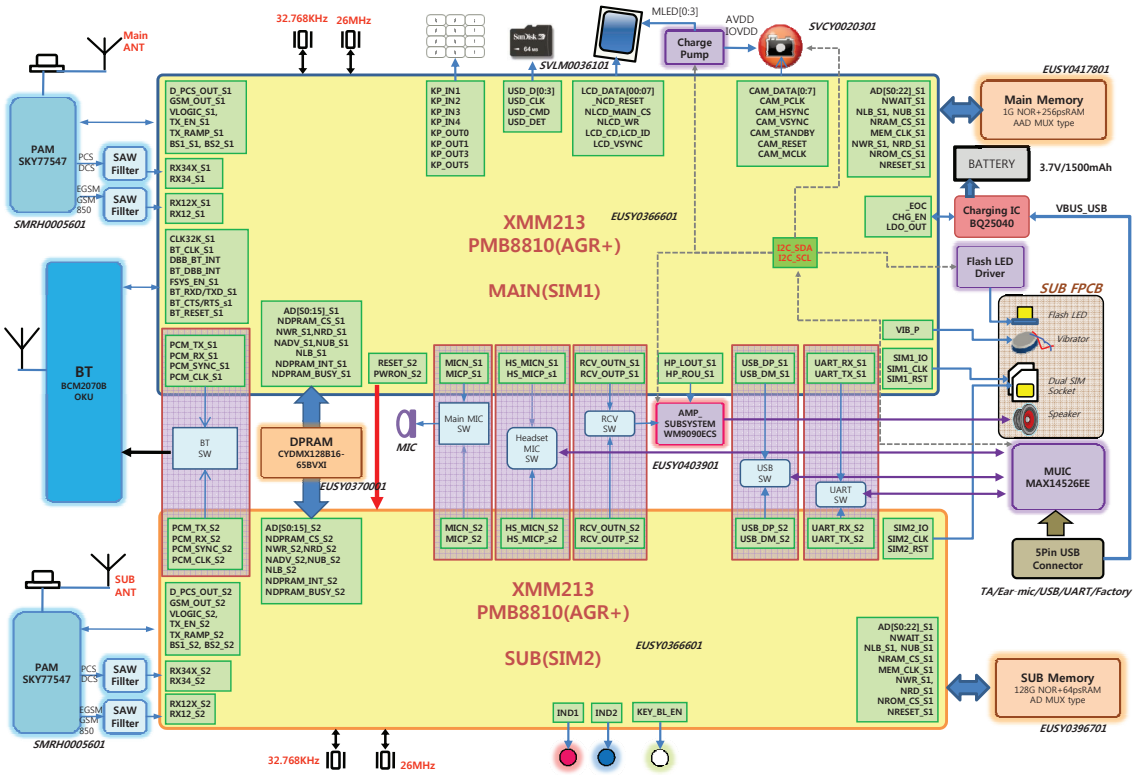


Figure. 3.1.1 GX300 Functional Block Diagram

3.2 Digital Main Processor (PMB8810, U102/U402)

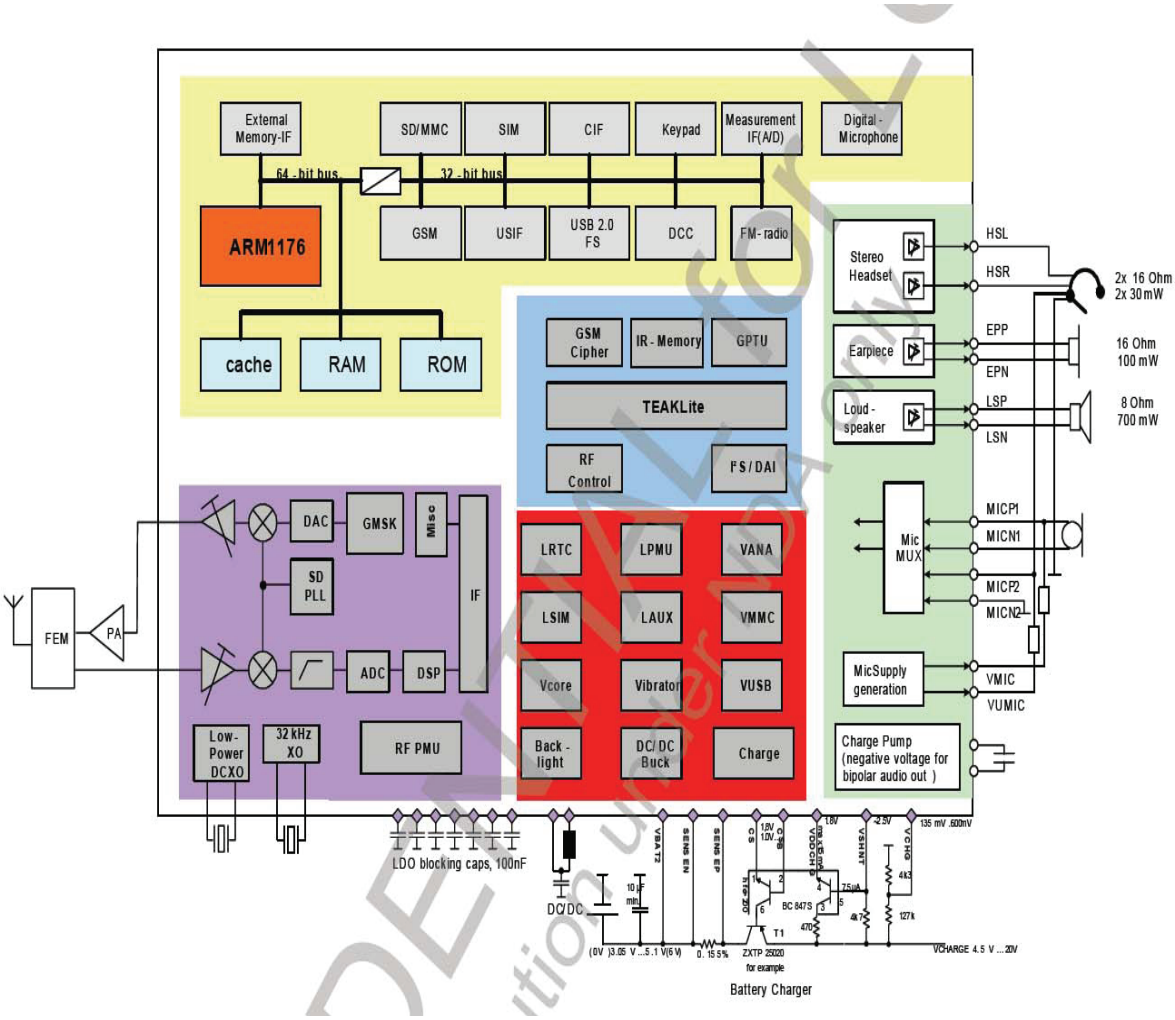


Figure. 3.2.1 X-Gold tm 213 Hardware Block Diagram

3.2.1 General

Technology:
– SoC, Monolithic, 65 nm CMOS
• Package:
– eWLB, 8x8x0.8 mm
– 0.5 mm pitch
– 217 balls / 6-layer PCB

3.2.2 RF Transceiver

• Dual-band direct conversion receiver
• Tri/Quad-band possible with external circuitry
• Fully integrated digital controlled X0
• Additional buffer for 2 external system clocks
• Fully digital RF-Synthesizer incl. ΣΔ-Transmitter

3.2.3 Baseband

• DSP:
– 156 MHz TeakLite™
• MCU:
– ARM1176® @ 208 MHz
• MCU RAM:
– 3.00Mbit
• Memory I/F:
– 512 Mbit (can be extended to 2 Gbit in AD-Mux/Demux, and up to 4 Gbit in AAD-Mux mode)
• Modem:
– GPRS class 12, (RX/TX CS1-CS4)
– EGPRS class 12, (RX MCS1-MCS9, TX MCS1-MCS4)
• Cipher Units:
– A51/2/3
– GEA-1/2/3
• Security:
– OMTP TR0
– Secure Boot
– RSA(ROM)/SHA-1(HW accel.)
– OCDS disabling
– Certificate Management

• Speech Codec:
– FR / HR / EFR / NB-AMR
• Audio Codec (running on ARM1176):
– SP-MIDI
– SB-ADPCM
– MP3
– WB-AMR
– AAC/AAC+/eAAC+
• Others:
– DARP (SAIC)
– TTY
• Customization:
– E-Fuses

3.2.4 External Memory

• External Bus Unit
– 25-bit address bus (512 Mbit) - can be extended to 27 address bits (2 Gbit)
– 16-bit data bus
– 1.8V & 2.8V support
• Flash / RAM
– NOR Type
– Serial Flash SPI and SPI-4
– Parallel Flash (Page & Burst Mode)
- 16-bit Demultiplexed
- 16-bit AD-multiplexed
- 16-bit AAD-multiplexed
– iNAND Type e.g. oneNAND
• Memory card
– SD/MMC card interface with 1 or 4 data lines

3.2.5 Connectivity

• 3xUSIF (configurable either as SPI or UART), I2C, I2S; Interfaces @ 1.8V
• Direct (U)SIM 1.8/3V
• USB2.0 up to 480 Mbit/s (High Speed) w/ external USB Phy over ULPI interface
• Stereo Headset (Amplifier integrated)
• 3 external analog measurement PIN's
• Bluetooth, A-GPS, WLAN support (I2C, I2S, SPI)

3.2.6 Mixed Signal

• Improved audio performance
• Loudspeaker Audio Class D Amplifier, 700 mW@8 Ω mono for hands-free and ringing
• Stereo Headset 2x30 mW@16 Ω w/o coupling C
• Mono Earpiece 100 mW@16 Ω
• Digital microphone supported
• Differential microphone inputs

3.2.7 FM Radio

• Integrated FM radio
– FM Stereo RDS Receiver
– Sensitivity 2 µV EMF
– Support for US & EU bands
– Stereo recording

3.2.8 Power Management

• Direct-to-Battery Connection
– LDOs (incl. capless)
– DC/DC step-down converter
– DC/DC step-up for white LED supply
• Battery Type
– Li-Ion
• Charging control
– Battery temperature
– Watchdog protection
– Start-up on flat battery
• External Charger
– Switch mode
• USB battery charging
– USB charging spec 1.0 compliant
• Backlight
– Up to 4 serial white LEDs (integrated LDO)

3.2.9 Display

• Type
– 176*220, QCIF, 262k color (parallel)
• Interface
– Parallel 8/9bit MIPI-DBI Type B
– Serial MIPI-DBI Type C
– Interf. voltage at 1.8V or 2.8V
• gRacr - Display Controller (Hardware)
– 30 fps Display update without DMA (up to 60 fps) (full or partial)
– Video post processing Scaling, Rotation (90° steps), Mirroring
– Overlay with alpha blending
– Color conversion YUV -> RGB
– 2D vector graphics (Lines, filled rectangles, Bit block transfer (e.g. sprites, scrolling, antialiased bitmap fonts)

3.2.10 Camera

• 2.0 Mpx CMOS
• HW JPEG encoder (39 Mpx/sec)
• 39 MHz Pixel Rate
• 15 fps@2.0 Mpx full resolution

3.2.11 Video Capabilities

• Video Decoding MPEG-4/H.263
– QCIF@30 fps
– QVGA@15fps
• Video Encoding MPEG-4/H.263
– QCIF@15 fps

3.2.12 Audio Capabilities

• Polyphonic ring tones
– 64 voices MIDI, SP-MIDI
– FM synthesizer
• AMR-WB
• True ring tones (MP3)
• MP3, eAAC+
• G.722 SB-ADPCM encoding/decoding

3.3 Power Management

A mobile platform requires power supplies for different functions. These power supplies are generated in the integrated power management Unit (PMU). The PMU is designed to deliver the power for a typical standard phone.

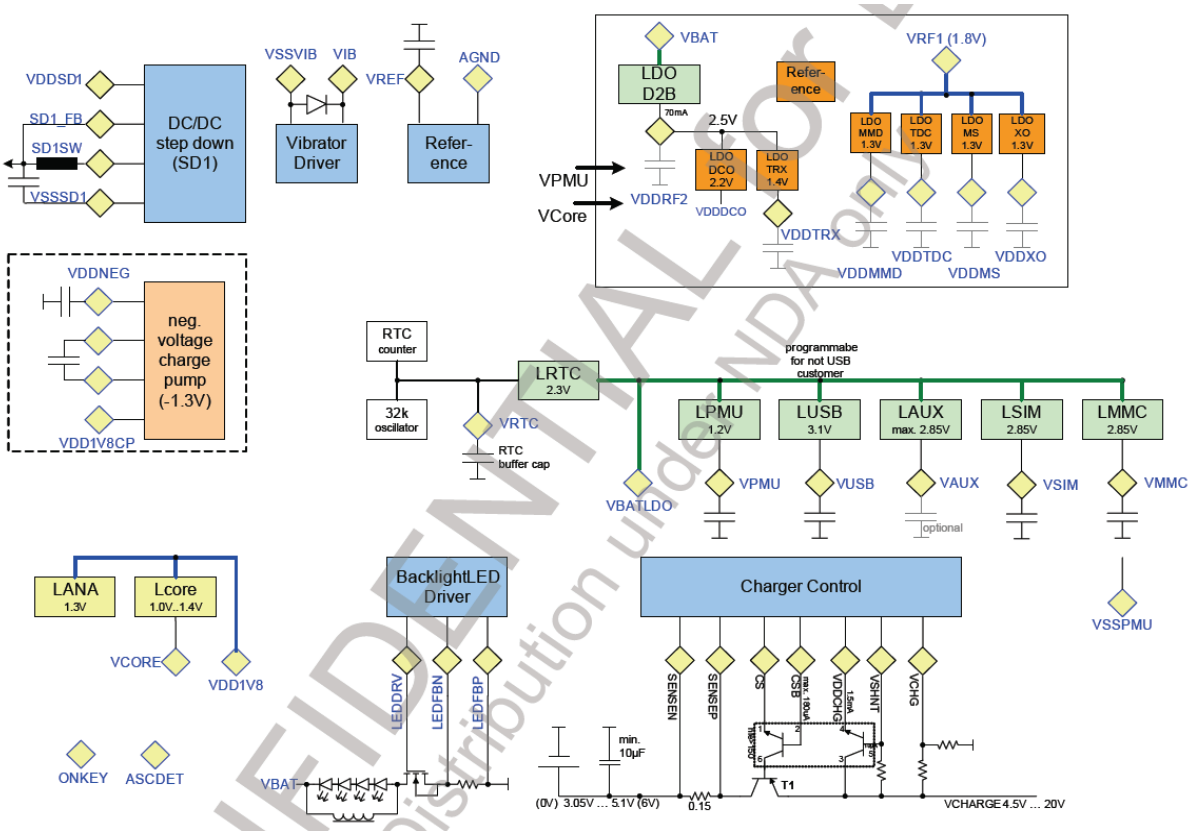


Figure. 3-2-1 Block Figure of the PMU Modules X-Gold tm 213

▪ DC/DC Step Down Converter for 1.8V (SD1)

The DC/DC converter generates a 1.8V supply rail. This voltage rail is used to supply main parts of the system, like the digital core of the chip (via LDO LCORE), some parts of the mixed signal macro, parts of the RF macro and the external memory if a 1.8V memory is used. The efficiency of the DC/DC converter is optimized for an average load current of 100mA. That is the load current estimated for the GSM talk mode.

▪ Linear voltage Regulators (low dropout) LDOs

The LDOs are used to generate the supply for the different supply domains not directly supplied out of the DC/DC converter.
The VSIM output current is high enough to drive USB SIM cards.

▪ LCORE

The LCORE LDO provides the VCORE supply used for most of the digital parts of the chip

▪ LPMU

The LPMU provides VPMU sued for the PMU supply, e.g. for the startup state machine and analog parts like ADC, sense amplifier etc.

▪ LUSB

The LUSB LDO generates the supply for the USB transceiver (output driver and input). If no USB interface is required, LUSB can be used as general purpose LDO.

▪ LAUX

The LAUX generates VAUX. It is a general purpose LDO and can be used for different functions depending on the phone application, e.g. for the display or Camera.

▪ LMMC

The LMMC generates VMMC. It is a general purpose LDO and can be used e,g. for memory cards

▪ LSIM

The LSIM LDO generates the VSIM supply for the SIM card and interface. It is designed to supply Standard SIM cards.

▪ Other LDOs

The RF module has implemented several LDO's for different RF Power domain.
The mixed signal module has some LDO's for the audio driver and microphone supply.

Supply Domain LDO Name	Voltage	Max. Current	Output Cap	Input Domain	Comment
VBAT	0 ... 6.0 V				Operating range is 3.05 V ... 5.5 V, system emergency switch off voltage is about 2.8 V
VDD1V8	1.8 V	450 mA	22 µF	VBAT	This voltage is generated by the DC/DC converter with 3.3 µH inductor, The voltage is used for: Memory supply, and via LDO's for digital core supply, mixed signal supply and RF supply.
LCORE	1.2 V	300 mA	2x100 nF	VDD1V8	
LANA	1.3 V	10 mA	No	VDD1V8	No ball
LRTC	2.3 V	2 mA	>=100 nF	VBAT	This supply is only used for the HPBG, the 32.768 kHz oscillator and the real-time clock counter required during the sleep- and low-power mode.
LPMU	1.2 V	15 mA	100 nF	VBAT	Supply for the digital part of the PMU including digital control of DC/DC converter. This voltage is also used for the N-DEMOS driver of DC/DC converter and the class-D amplifier and the core PLL.
LUSB	3.1 V	40 mA	100 nF	VBAT	Used for the USB driver supply or as general purpose LDO with programmable output voltages (2.5 V, 2.85 V, 3.1 V)
LAUX	1.5 V ... 2.85 V	150 mA	470 nF	VBAT	General purpose LDO for e.g. Display, Bluetooth, Camera etc. Programmable output voltages are (1.5 V, 1.8 V, 2.5 V, 2.85 V)
LSIM	1.8 V / 2.85 V	30 mA	>=100 nF	VBAT	LDO dedicated to the SIM-Card supply. It is chip internal connected to the SIM interface driver.
LMMC	1.5 V ... 2.85 V	150 mA	>=470 nF	VBAT	General purpose LDO, targeted for MMC/SD card supply.
VDDNEG	-1.3 V	100 mA	100 nF	VDD1V8	Negative voltage for the bipolar headset audio driver. Generated by a charge pump.

Table. 3.3.1 Power supply Domains (without RF)

3.3.1 Power on and startup

▪ Analog startup Circuit

Because the POR circuit and the LPBG are directly connected to the battery, it is not possible to switch them off. If the battery voltage exceed the power on reset threshold (2.5V), the power on reset is released, the LPMU regulator and the LRTC voltage regulator are switched on. The LPMU regulator starts in its ultra-low power mode

The LPMU regulator generates a control signal (lpmu_OK) that enables the 50KHZ PMU oscillator. The output clock of the oscillator is checked with a fully coded counter. A counter overflow releases the reset (vpmu_rst_n) signal for the small PMU state-machine.

▪ Small first digital State-Machine

The small PMU state-machine is always connected to VPMU After starting from reset the small startup state machine enters the SYSTEM OFF state and only continuous the startup procedure if a switch on event like first connect, on-key, wake up or charge detect occurs.

▪ PMU-main State-Machine

The main PMU state-machine is always connected to VPMU also. The power up sequence driven by the PMU state-machine can be seen in Figure18. After enabling the reference (HPGB) and waiting for the settling time, the battery voltage is measured and compared with the power on threshold. If the battery voltage is high enough, the SD1 DC/DC converter and the LCORE LDO are started. A timer ensures that the supply voltage will be stable before the DCXO is enabled. The DCXO settling time is ensured using a fixed timer. After an overflow of this timer, the reset is released for the rest of the system. The PMU state machine remains in this System-ON state until the system is switched into the OFF state. For example the system sleep mode is completely configured by software(for example switching off the LDO's, switching of the DCXO etc.) and controlled by the VCXO_enable signal. The reason for the startup is stored in the ResetSourceRead register.

▪ Battery Measurement

The ADC and the oscillator for the ADC needs the VDD_ADC supply voltage from the LADC LDO. LADC uses either the charger voltage VDD_CHARGE or VDDRTC as input voltage. The input voltage is selected automatically by a bulk switch circuit. LADC, the ADC and the oscillator are enabled on request for every battery measurement if the charger unit is not running. This is handled by an ADC control block in one of the state-machines. If the charger unit is running the ADC is controlled by the charger state-machine

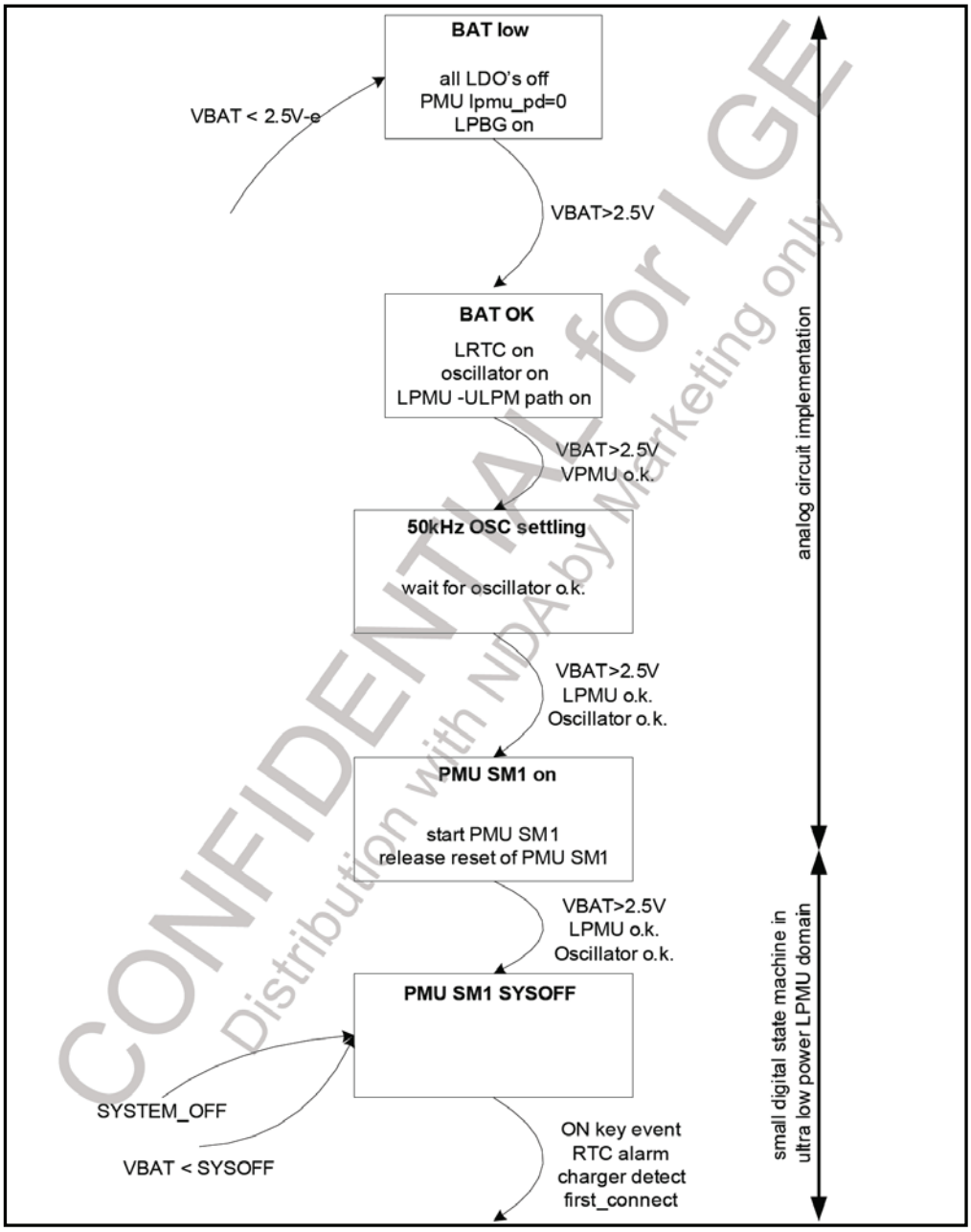


Figure.3.3.2 First Part of the State Machine,
Running in Different Power Domains than the Second Part

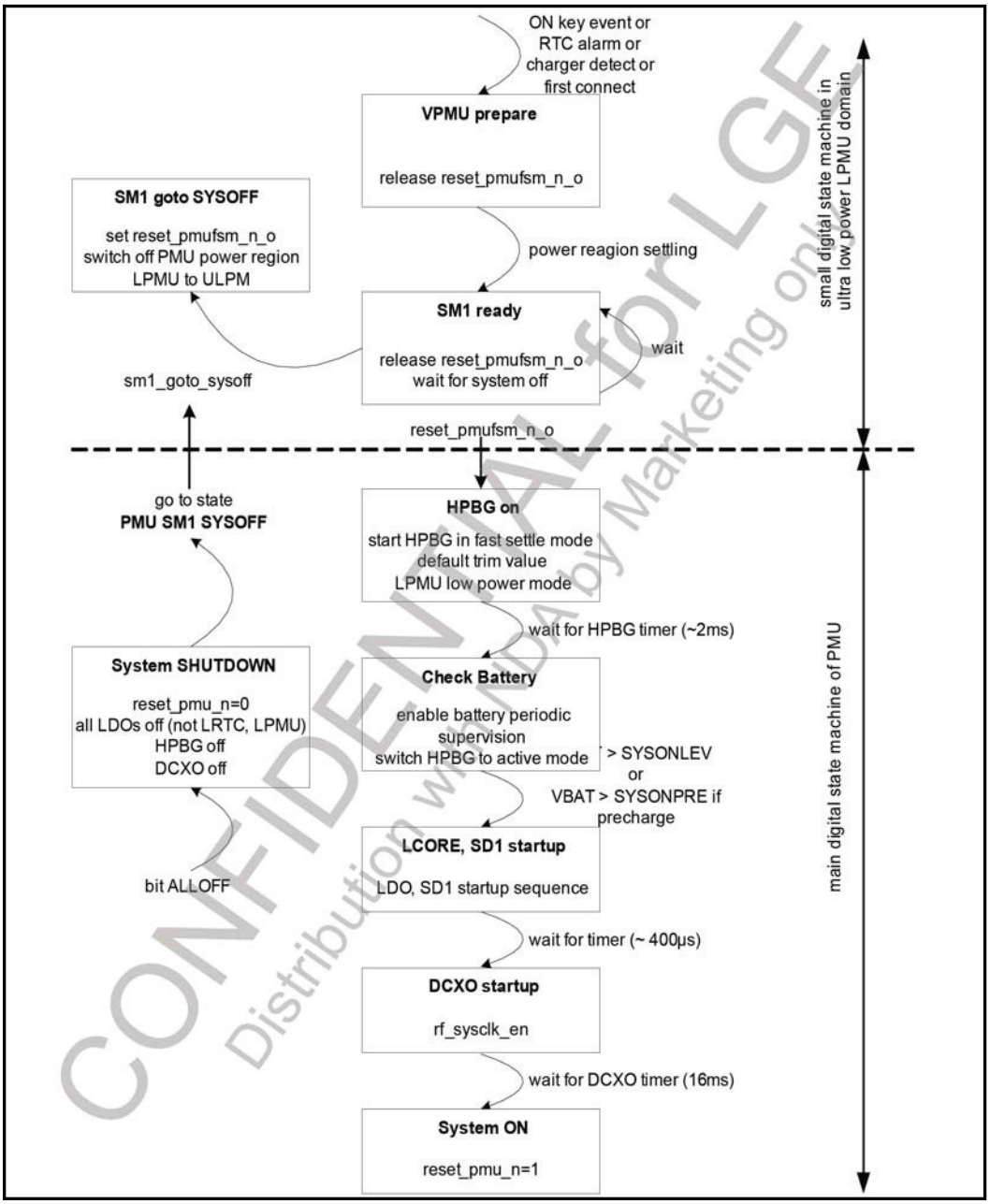


Figure 3.3.3 Second (Main) Part of the Startup State Machine in the VPMU Domain

3.3.2 Switching on due to first connect

If the battery voltage is connected the first time, that means the system enters the first time the SYSOFF state, this is stored in a first connect flag. If the first connect flag is set, the system will start immediately and not wait for any other system on event in the SYSOFF state.

3.3.3 Switching on due to on-Key event

The on key is connected to the ONKEY pad. The ESD protection and the input structure of this pad are connected to VRTC. If the ONKEY pad is forced to VRTC by an external key or similar circuit, the system starts. The ONKEY is sampled with the PMU clock. It has to be sampled four times high before a valid on event is generated. The status of the ON key can be read in the PMU registers, so it can be used as a functional key during phone operation also

3.3.4 Switching on due to RTC alarm

The real time clock can generate a wakeup signal called RTC alarm. This signal is sampled from the state-machine and after successfully detecting a high, the system is switched on.

3.3.5 Switching on due to charging

When a battery with a voltage below the SSONLEV level is inserted, the state machine will not start the system. As long as the battery voltage stays lover than SYSONLEV the system will stay off. The only possibility to start up the system is due to an external charger.

If an external charger is connected and detected and the battery is charged above the SYSONPRE voltage level the system will start up.

The PMU main state machine waits in the Check battery state until the battery voltage condition is fulfilled. The charger state machine provides the necessary pre-charge indication signal. This pre-charge signal is denounced in a small counter to have a stable signal. This is important, especially in half/full-wave charging where the charger detection is switching between charger detected/not detected according the AC supply frequency. reasons

For details on pre-charging see the charger chapter. The charger is controlled by an independent state machine. The pre-charge signal is used to trigger the pre-charge signal is used to trigger the pre-charge functionality. The charger state machine fully control the pre-charge, the PMU-state machine now changes to state HPBG on state and the system starts. This state change is indicated to the charger state-machine to
enable the charger watchdog for safety

3.3.6 Power Supply Start-up sequence

In order to avoid an excessive drop on the battery voltage caused by in-rush current during system power-on, possibly leading to system instability and “hick-ups” a staggered turn-on approach for the regulators is implemented. The regulators are turned on in a well defined sequence, thus spreading the in-rush current transients over time.

The IO’s of X-GOLD TM 213 are isolated in OFF mode (core supply is off). The isolation signal is controlled by the PMU state machine. This ensures that the PADs are in a well defined state during core supply settling. This allows to power up the LCORE core regulator and wait for the core to reach reset state before powering up the I/O supply regulators.

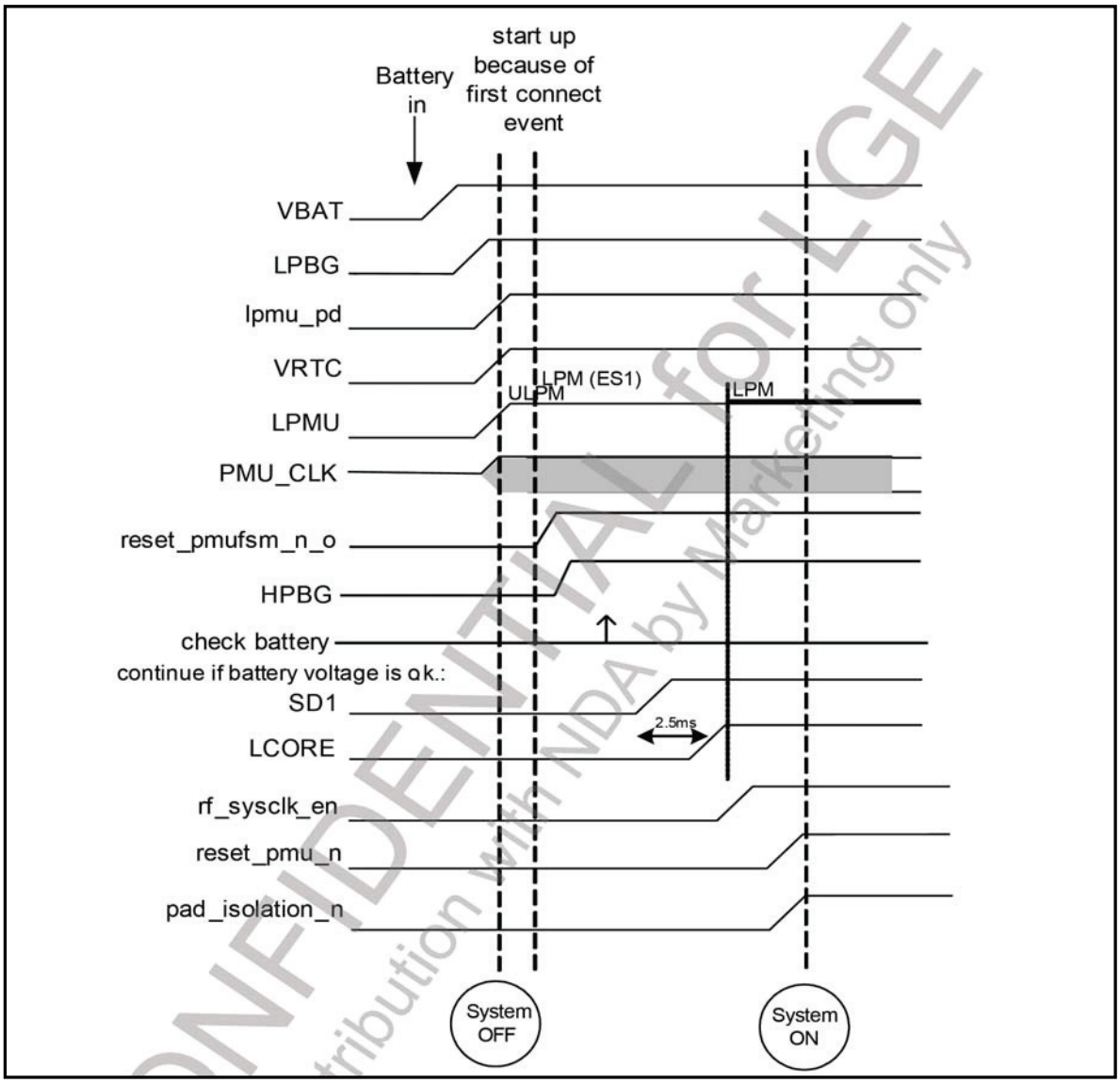


Figure 3.3.4 Start Up Sequence (triggered by First Connect Event)

3.3.7 External Reset Handling

The chip reset can be controlled by an external RESET_N ball. If this ball is pulled low, the chip will be reset. All PMU registers are reset during the external reset including LSIM control bits. The PMU statemachines are also not reset from the external reset. An SW or watchdog reset will not reset the PMU registers. A SW and Watchdog reset is seen on the reset_n pad to allow the reset of external devices. Basically there are three reset sources, first the reset signal controlled by the PMU (reset_pmu_n_o), second the reset signal controlled by the SCU (resetout_o) and third the external reset (RESET_N). The SCU reset is triggered by SW (for example due to a SW reset or watchdog reset). The PMU reset is controlled by the PMU state machine. The output of the reset handling block is the reset_postscu_n_o signal. This signal controls for example the µC subsystem and releases reset for the controller. During normal start up, the PMU releases the reset_pmu_n_o signal after entering the SYSTEM ON state. At this time the resetout_o signal is high, the RESET_N pad is not pulled low and therefore the reset_postscu_n_o signal follows the reset_pmu_n_o signal. That means the µC reset will be released and the µC starts operation. If the SW triggers an external reset via the SCU, signal resetout_o will be forced to low for a certain time and RESET_N will be forced to low by the open drain driver. At the same time the feedback to the SCU will be masked to not reset the baseband. The RESET_N pad is in the VDDRTC domain but the internal pull up is connected to the VDD_VDIG1 (1.8V) domain. That allows the pad to be used as reset for external devices running in the VDD1V8 domain. The RESET_N pad can also be used to monitor the chip internal reset condition during startup.

The open drain driver is a weak driver, that means it can be forced to high during debug from external pushing some current into the pad. In testmode signal reset_pmu_n_o is high, that means the chip reset is fully controlled from external

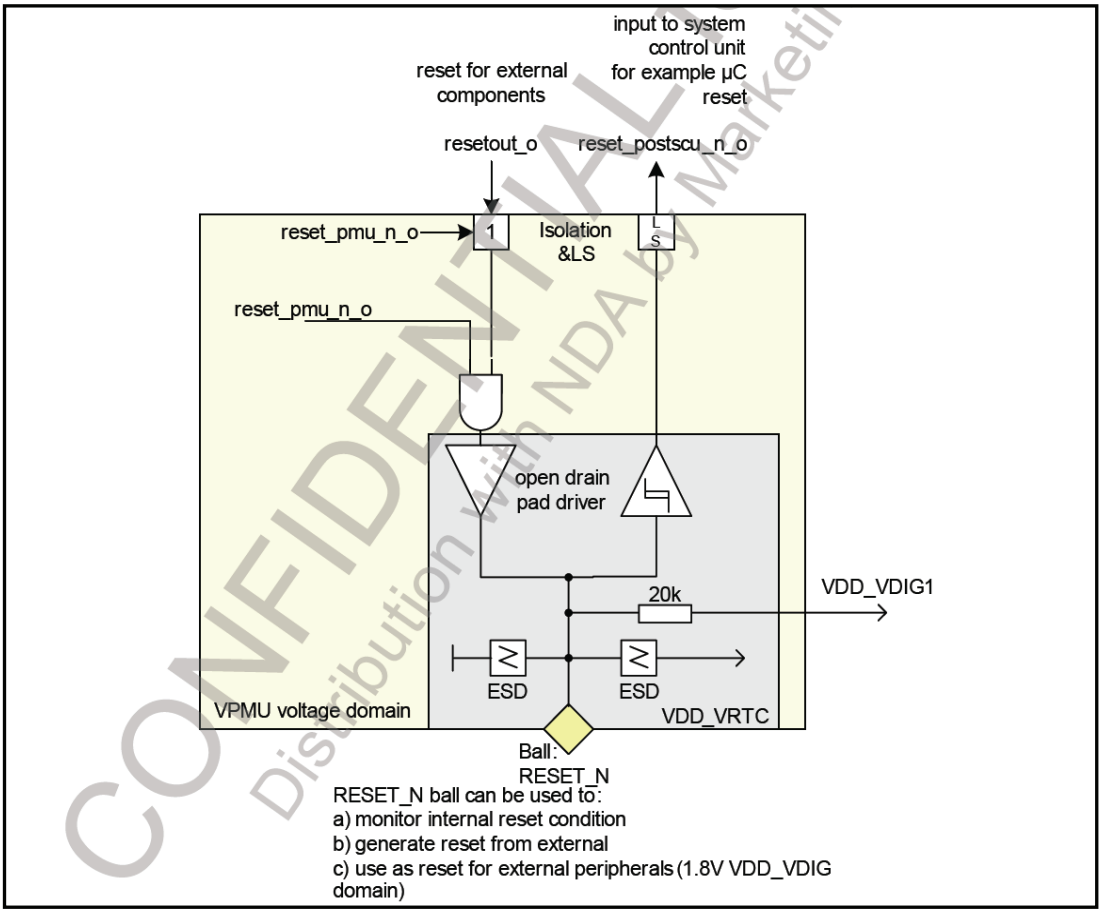


Figure 3.3.5 PMU, CGU and External Reset

3.3.8 Sysclock Switching

The PMU controls the rf_sysclk_en signal of the DCXO in the RF macro. During startup the PMU enables the DCXO. After the system is running the DCXO is controlled by the SCU of the baseband by using the vcxo_enable signal. This is handled by a dedicated logic in the PMU, see **Figure 3.3.6**. As long as rf_sysclk_en_pmu, the output of the PMU state-machine is high, vcxo_enable controls the rf_sysclk_en signal to the RF. If rf_sysclk_en_pmu is low, the DXCO is switched off, independent from vcxo_enable.

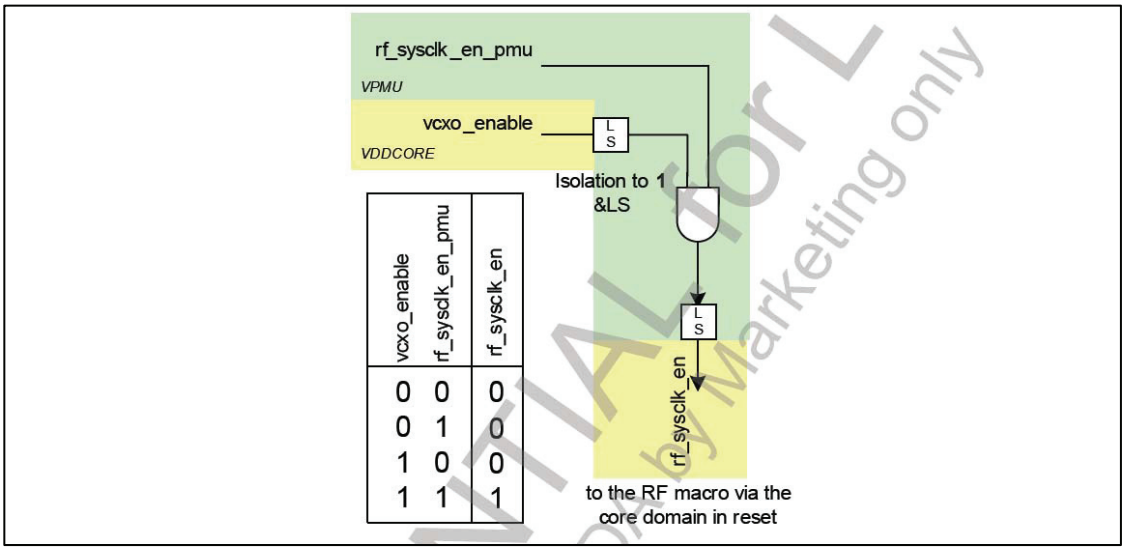


Figure 3.3.6 How sysclock Enable is Routed in the PMU

3.3.9 Undervoltage Shutdown

In active mode the PMU periodically measures the battery voltage using the ADC from the charger unit. If the battery is measured to be below the programmable shut-down level (called SYSOFF), the system changes to OFF mode. This is done via the SHUTDOWN state of the PMU state machine. (see chapter switch OFF)

3.3.10 Software Reset

A software reset does not affect any PMU register. The PMU register are reset with the reset_pmufsm_no signal. That means all PMU register are reset in OFF state. For details about the SW reset see chapter **External Reset Handling**

3.3.11 PMU Clock

During the first startup (for example plugging in a battery) a PMU internal oscillator is used for generation of the PMU clock (pmu_clock). The frequency is slightly above 32 kHz (typ. 50 kHz) to be out of the audio band also for worst case devices. After first startup the software shall enable the 32 kHz crystal oscillator. It is not possible to use the 32 kHz oscillator during first startup, because the settling time of the oscillator can be quite long. After the 32 kHz oscillator is running and settled the software shall switch the PMU clock to the 32 kHz clock and disable the internal PMU oscillator for power saving reasons. The 32 kHz oscillator shall never be disabled after the PMU clock has been switched. The ADC in the charger unit has it's own oscillator generating a frequency of about 10 MHz. This oscillator is running during charging and during battery measurements triggered by the PMU. It is off otherwise.

3.3.12 System Sleep Mode

The sleep mode is controlled by using the VCXO_enable signal. This signal is used to switch the LDO's and the DC/DC converter SD1 in a programmable way into its low power mode (PFM). In addition DC/DC converter SD1 can be configured to change the output voltage to a lower value for additional power saving. VCXO_enable is also used to deactivate the HPBG and setting LDO LPMU in the ultra-low-power mode. In addition the DCXO is switched off by the VCXO_enable signal. The VCXO_enable signal is also used to switch some LDO's (software configured) to sleep and/or off mode or to change the output voltages of said LDO's. The state of the main PMU state machine is not changed due to VCXO_enable.

3.3.13 DC/DC Pre-Load Register Handling

The DC/DC converter works in different modes. If the mode is switched from PFM to PWM the pulse-width of the DC/DC converter depends on the current battery voltage (and on the output voltage). The PMU state-machine knows the battery voltage because of the battery supervision function. Depending on this value it selects a startup pulse-width for the DC/DC converter out of a register table. (4-values)

3.3.14 Power Down Sequence

Setting bit OFF in the GeneralControl register switches the system into OFF mode. After the turn off event, the state-machine switches to the SHUTDOWN state. The reset_pmu_n_o signal changes to low, the I/O pads are isolated using the padisolation_n signal, the LCORE LDO and the SD1 DC/DC converter are switched off, the LPMU LDO is switched to ultra-low power mode, the DCXO is turned off and the bandgap buffer is disabled. Before switching OFF the software shall have enabled the 32 kHz oscillator and has switched the PMU clock to the 32 kHz clock to archive the target OFF current

3.4 FEM with integrated Power Amplifier Module (SKY77547, U300, U302)

3.4.1 Internal Block Diagram

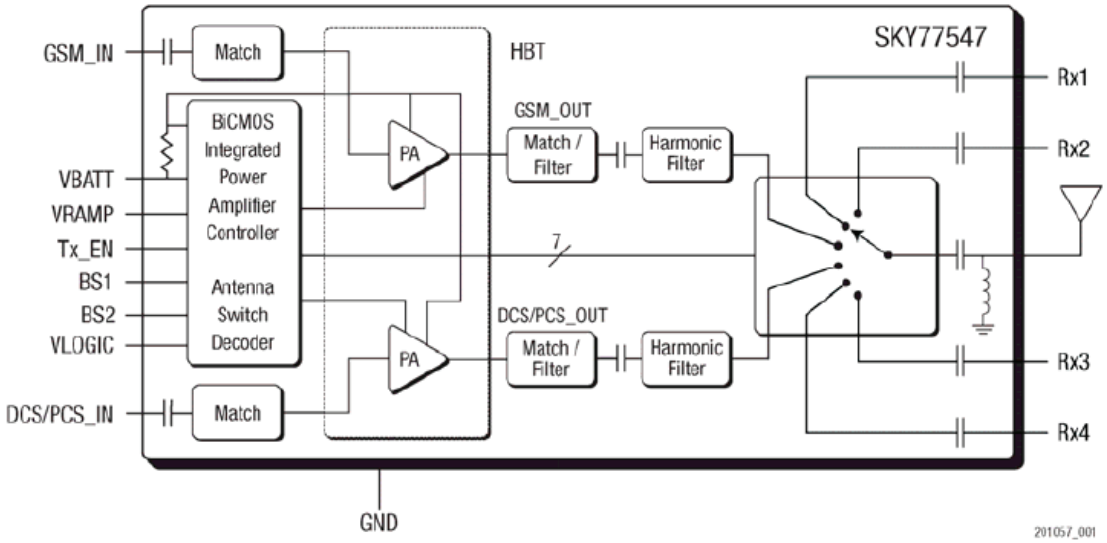


Figure. 3.4.1 SKY77547 FUNCTIONAL BLOCK DIAGRAM

3.4.2 General Description

The **SKY77547** is a transmit and receive front-end module (FEM) with Integrated Power Amplifier Control for quad-band cellular handsets comprising GSM850/900 and DCS1800/PCS1900 operation. Designed in a low profile, compact form factor.
The FEM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation.
The module consists of a GSM850/900 PA block and a DCS1800/PCS1900 PA block, impedance matching circuitry for 50 Ω input and output impedances, TX harmonics filtering, high linearity and a low insertion loss PHEMT RF switch, and a Power Amplifier Control (PAC) block with internal current sense resistor. A custom BiCMOS integrated circuit provides the internal PAC function and decoder circuitry to control the RF switches. The two Heterojunction Bipolar Transistor (HBT) PA blocks are fabricated onto a single Gallium Arsenide (GaAs) die. One PA block supports the GSM850/900 bands and the other PA block supports the DCS1800/PCS1900 bands. Both PA blocks share common power supply pads to distribute current. The output of each PA block and the outputs to the four receive pads are connected to the antenna pad through a PHEMT RF switch. The GaAs die, PHEMT die, Silicon (Si) die and passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

Mode	VLOGIC	Input Control Bits		
		TX_EN	BS1	BS2
STANDBY	0	X	X	X
RX1	1	0	0	0
RX2	1	0	0	1
RX3	1	0	1	1
RX4	1	0	1	0
LB_TX	1	1	0	X
HB_TX	1	1	1	X

1. X = DON'T CARE
2. RX1, RX2, RX3, and RX4 are broadband receive ports and each supports the GSM850, GSM900, DCS, and PCS bands.

Table 3.4.1 Band SW Logic Table

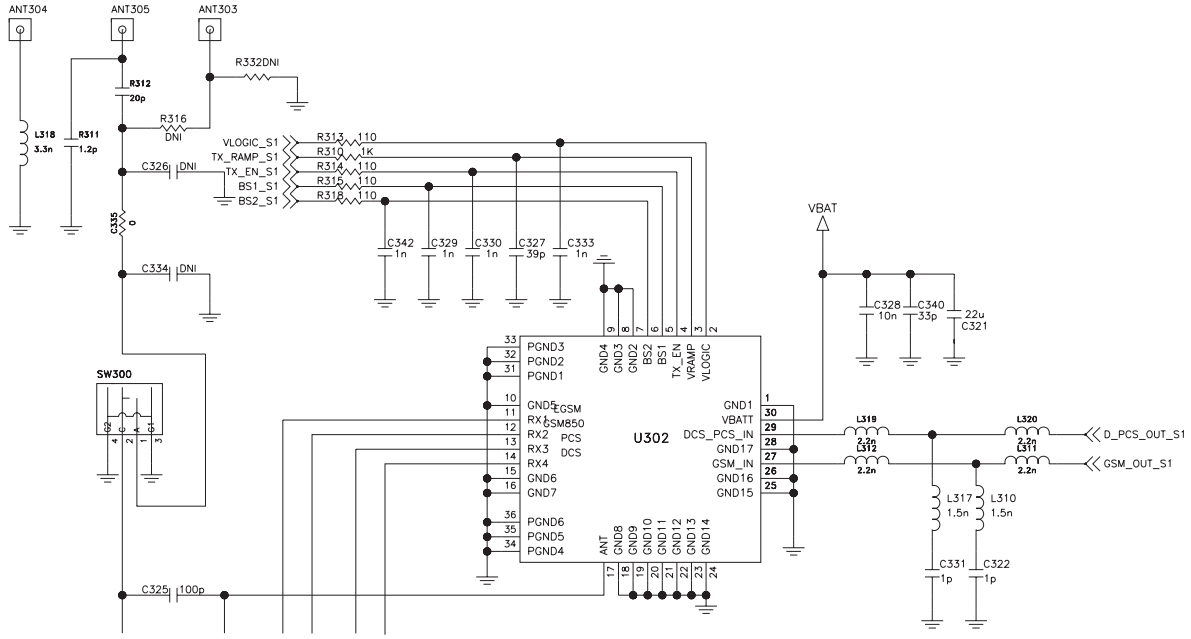


Figure 3.4.2 FEM CIRCUIT DIAGRAM

3.5 Crystal(26 MHz, X100, X401)

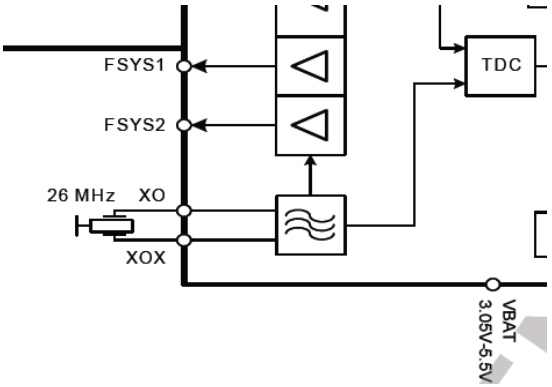


Figure. 3.5.1 Crystal Oscillator External Connection

The X-GOLDTM213 RF-Subsystem contains a fully integrated 26 MHz digitally controlled crystal oscillator, designed for 8 pF crystals. The only external part of the oscillator is the crystal itself. Overall pulling range of the DCXO is approximately ±55 ppm, controllable by a 13-bit tuning word.

This frequency serves as comparison frequency within the RF-PLL and as clock frequency for the digital circuitry.
The 26 MHz reference clock can also be applied to external components like Bluetooth or GPS, via the two buffered output signals FSYS1 and FSYS2

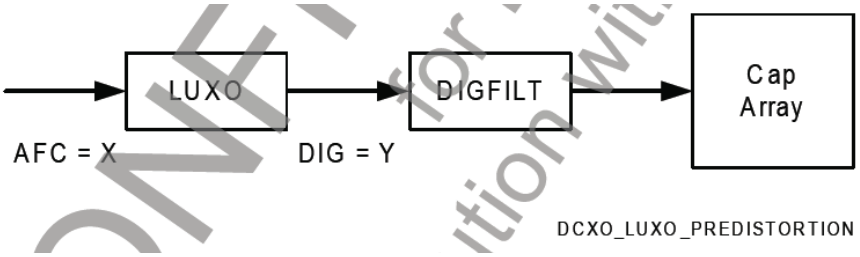


Figure. 3.5.2 Digital PREDISTORTION with LUXO

The DCXO tuning characteristic should be a first order linear function of the programming word AFC. The variable capacitance array is a first order linear function of the digital word DIG, which leads to a nonlinear curve ppm vs. DIG (and also a nonlinear ppm vs. AFC for DIG=AFC). In order to linearize the ppm vs. AFC curve the implementation of a predistortion is necessary.
To get the wanted linear ppm vs. AFC tuning curve some digital predistortion of the AFC word is required. This predistortion is performed by the linearization unit for crystal oscillator (LUXO). The LUXO calculates the corresponding DIG value according to the given AFC value.

3.6 RF Subsystem of PMB8810 (U102, U402)

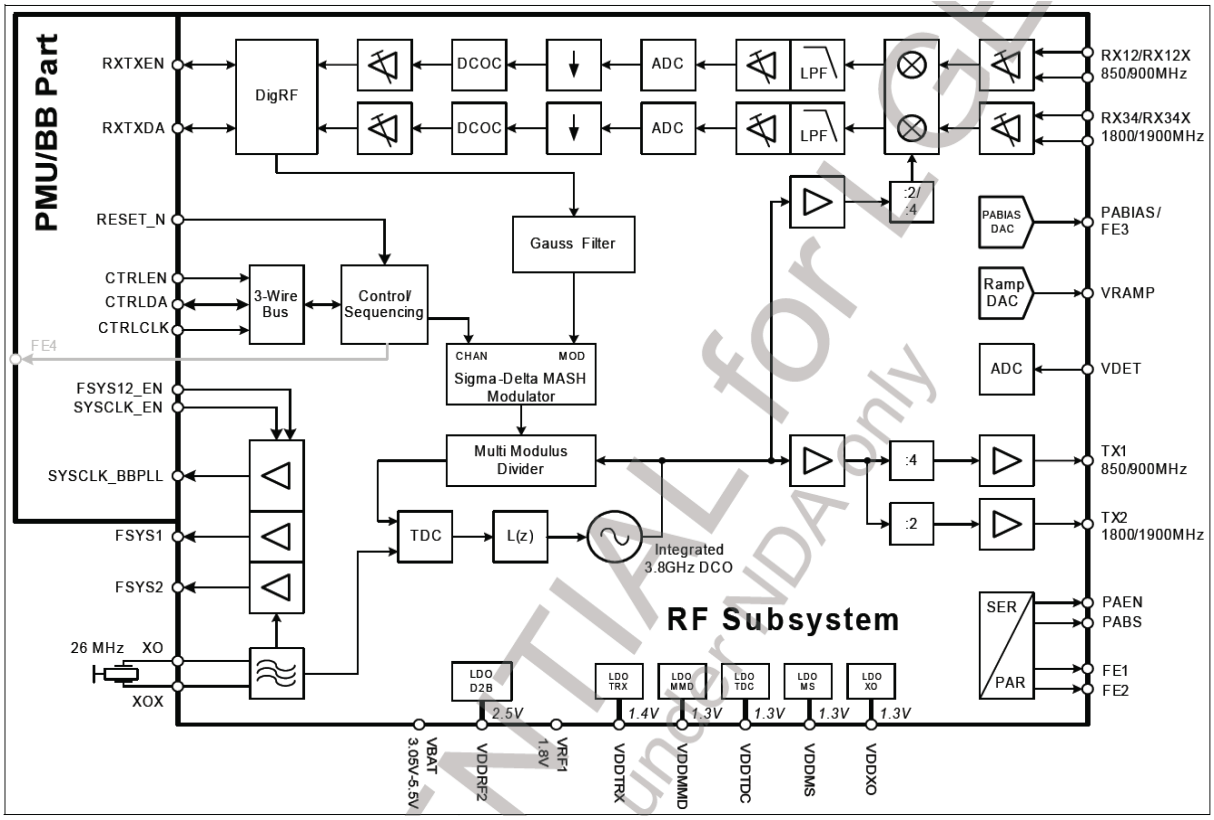


Figure. 3-6-1 Block DIAGRAM of RF Subsystem

3.6.1 GENERAL DESCRIPTION

The PMB8810 RF subsystem is designed for dual-band GSM voice and data applications (GPRS class 12). The system can be configured to support one low band, GSM850 or EGSM900, and one high band, DCS1800 or PCS1900. A block diagram of the RF subsystem is given in Figure 3-6-1.

3.6.2 FUNCTIONAL DESCRIPTION

3.6.2.1 Receiver

The X-GOLD™213 dual-band receiver is based on a Direct Conversion Receiver (DCR) architecture. Input impedance of the LNAs is optimized to achieve a matching without (external) high quality inductors. By use of frequency dividers (by 2/4) the LO frequency is derived from the RF frequency synthesizer.
The receive path is fully differential to suppress the on-chip interferences and reduce DC-offsets. The analog chain of the receiver contains two LNAs (low/high band), a quadrature mixer followed by an analog baseband filter and 14-bit continuous-time delta-sigma analog-to-digital converter. The filtered and digitized signal is fed into the digital signal processing chain, which provides decimation, DC offset removal and programmable gain control.

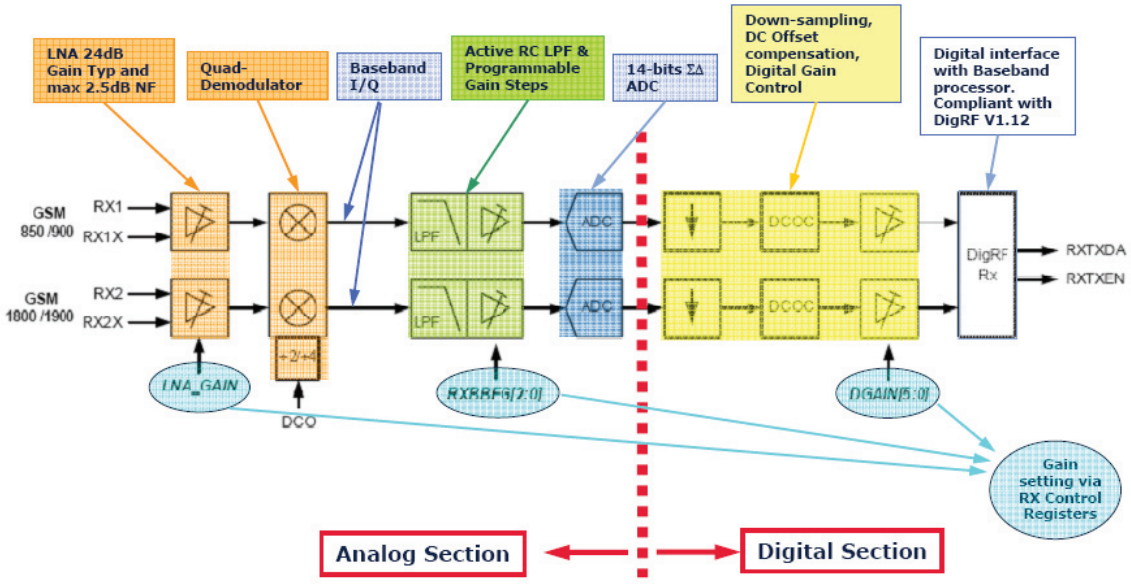


Figure. 3.6.2 RECEIVER CHAIN BLOCK DIAGRAM

3.6.2.2 Transmitter

The GMSK transmitter supports power class 4 for GSM850 or GSM900 as well as power class 1 for DCS1800 or PCS1900. The digital transmitter architecture is based on a fractional-N sigma-delta synthesizer for constant envelope GMSK modulation. This configuration allows a very low power design without any external components.
Up- and down-ramping is performed via the ramping DAC connected to VRAMP.

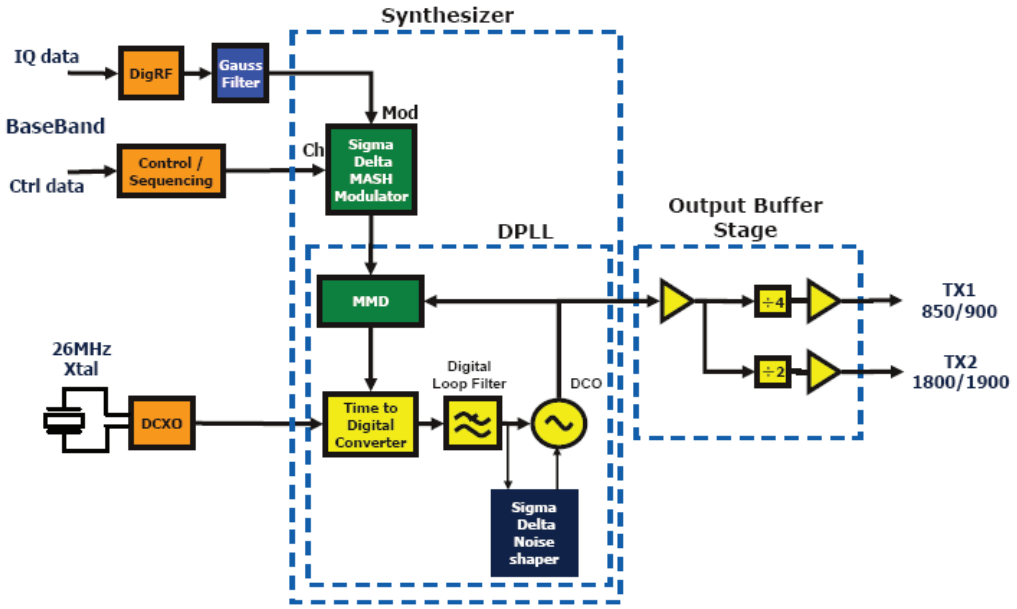


Figure. 3.6.3 TRANSMITTER CHAIN BLOCK DIAGRAM

RF synthesizer

The RF subsystem contains a fractional-N sigma-delta synthesizer for the frequency synthesis. Respective to the chosen band of operation the phase locked loop (PLL) operates at twice or forth of the target signal frequency. In receive operation mode the divided output signal of the digital controlled oscillator output (DCO) serves as local oscillator signal for the balanced mixer. For transmit operation the fractional-N sigma-delta synthesizer is used as modulation loop to process the phase/frequency signal. The 26 MHz reference signal of the phase detector incorporated in the PLL is provided by the reference oscillator.

3.6.2.3 Front-end/PA Control Interface

Two outputs (FE1, FE2) for direct control of antenna switch modules enable to select RX- and TX-mode as well as low- and high-band operation.
An extra band select signal PABS for the power amplifier is used, to support discrete PA and switching modules. Time accurate power dissipation of the PA is achieved by the control signal PAEN.
A minor set of power amplifiers require a bias voltage to enhance power efficiency. Support of this power amplifiers is achieved by the implemented bias DAC.

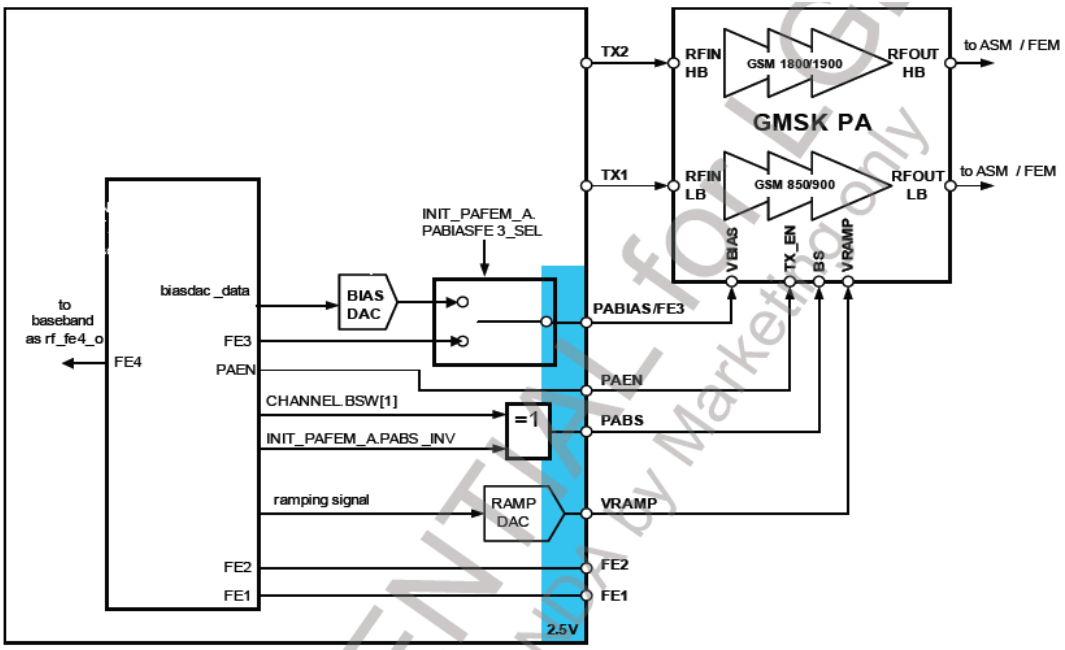


Figure. 3.6.4 PA AND FEM CONTROL BLOCK DIAGRAM

3.6.2.4 Power Supply

To increase power efficiency most parts of the RF subsystem are supplied by the DCDC converter situated in the PMU subsystem. Conversion of the 1.8 V output voltage of the DCDC to the 1.3 V/1,4 V circuit supply voltages is achieved by several Low-DropOut regulators (LDO).
One embedded direct-to-battery LDO provides the 2.5 V supply voltage for the remaining circuits.

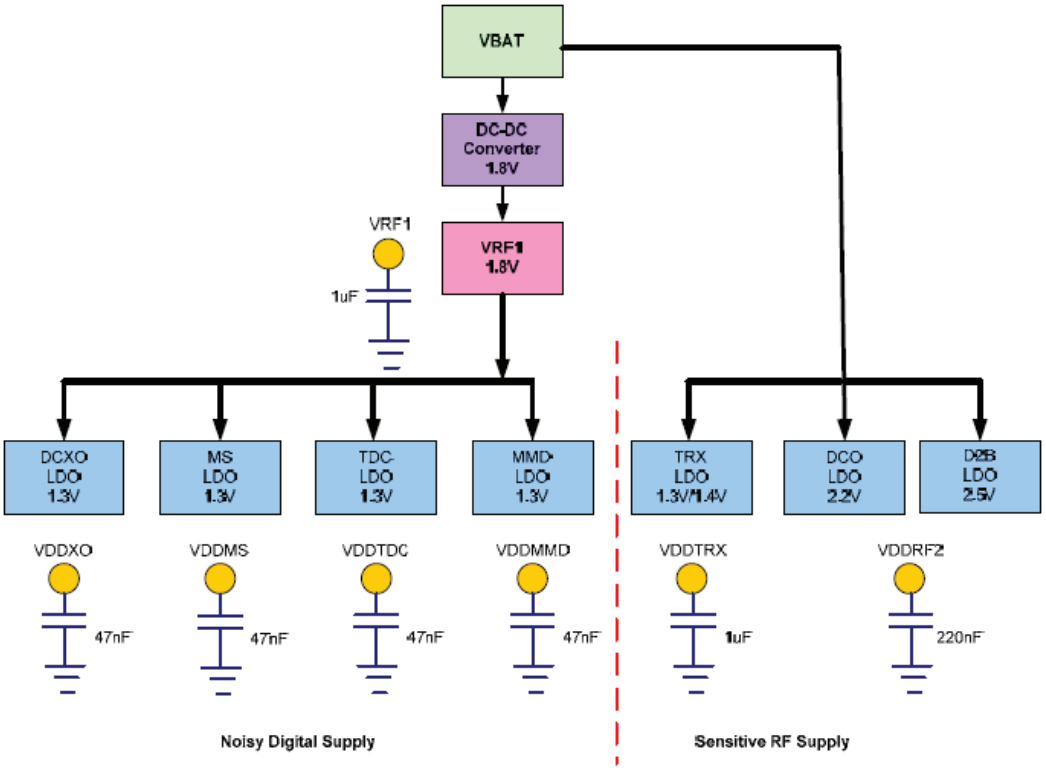


Figure. 3.6.5 POWER SUPPLY BLOCK DIAGRAM

3.7 MEMORY

GX300 is composed of 3 memories.
2 Main Memory(NOR+pSRAM) are connected each Main Chip(SIM1 AGR+ / SIM2 AGR+).
And 1 DPRAM is used to communicate between 2 Main Memory(NOR+pSRAM).

3.7.1 Main memory (PF38F6066M0Y3DE, U100 / PF38F3050M0Y3DE,U401)

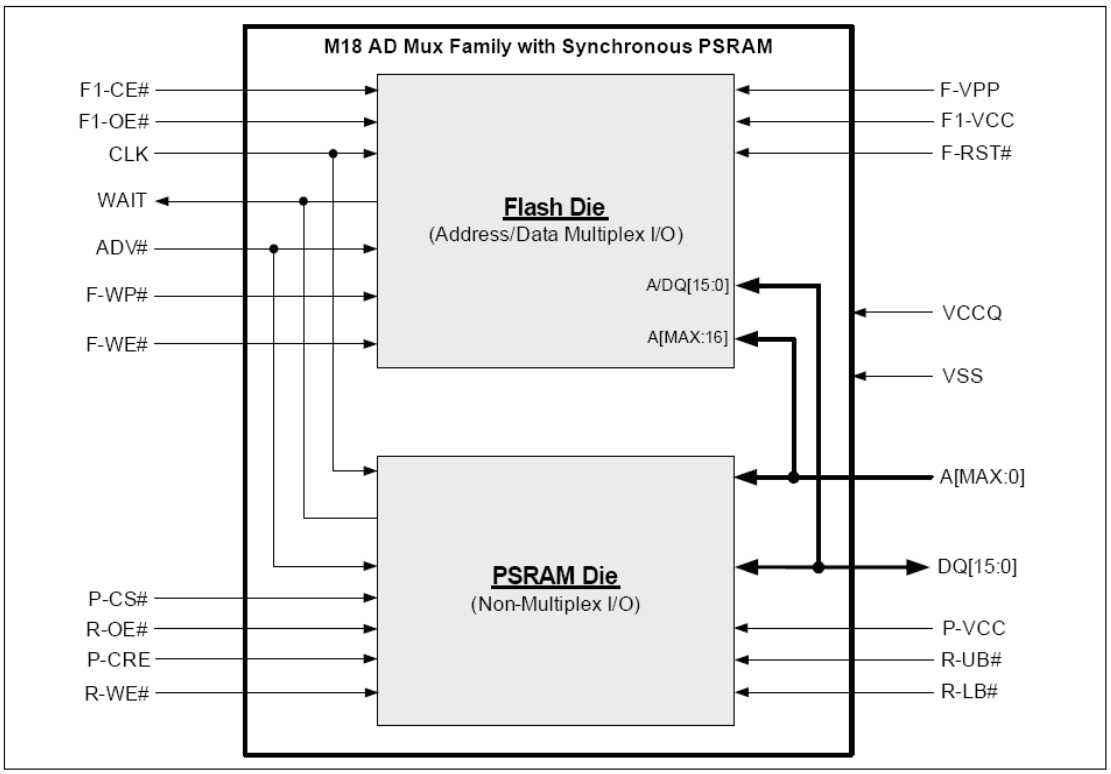


Figure. 3.7.1 MAIN MEMORY BLOCK DIAGRAM

The Numonyx™ StrataFlash® Cellular Memory (M18) device provides high read and write performance at low voltage on a 16-bit data bus.
The flash memory device has a multi-partition architecture with read-while-program and read-while-erase capability.
The device supports synchronous burst reads up to 108 MHz using ADV# and CLK address-latching on some litho/density combinations and up to 133 MHz using CLK address-latching only on some litho/density combinations.
It is listed below in the following table.

Litho (nm)	Density (Mbit)	Supports frequency up to (MHz)	Sync read address-latching
90	256	133	CLK-latching
	512	108	Legacy-latching
65	128	133	CLK-latching
	256	133	CLK-latching
	512	108	Legacy-latching
	512	133	CLK-latching
	1024	108	Legacy-latching
	1024	133	CLK-latching

Table 3_7_1 M18 Frequency combinations

In continuous-burst mode, a data Read can traverse partition boundaries.
Upon initial power-up or return from reset, the device defaults to asynchronous arrayread mode.
Synchronous burst-mode reads are enabled by programming the Read Configuration Register.
In synchronous burst mode, output data is synchronized with a user-supplied clock signal.
A WAIT signal provides easy CPU-to-flash memory synchronization.
Designed for low-voltage applications, the device supports read operations with VCC at 1.8 V, and erase and program operations with VPP at 1.8 V or 9.0 V. VCC and VPP can be tied together for a simple, ultra-low power design. In addition to voltage flexibility, a dedicated VPP connection provides complete data protection when VPP is less than VPPLK.
A Status Register provides status and error conditions of erase and program operations.
One-Time-Programmable (OTP) registers allow unique flash device identification that can be used to increase flash content security. Also, the individual block-lock feature provides zero-latency block locking and unlocking to protect against unwanted program or erase of the array.

The flash memory device offers three power savings features:
• Automatic Power Savings (APS) mode: The device automatically enters APS following a read-cycle completion.
• Standby mode: Standby is initiated when the system deselects the device by deasserting CE#.
• Deep Power-Down (DPD) mode: DPD provides the lowest power consumption and is enabled by programming in the Enhanced Configuration Register. DPD is initiatied by asserting the DPD pin.

3.7.2 GX300 SIM1 Part Main Memory (PF38F6066M0Y3DE, U100)

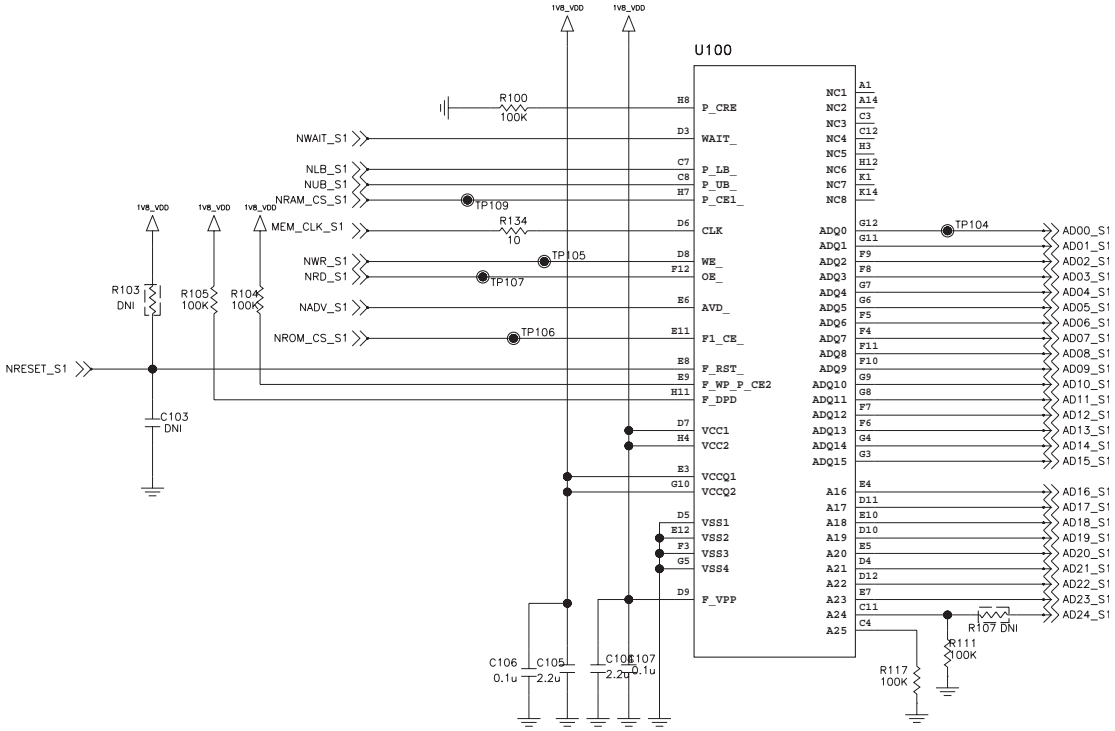


Figure. 3.7.2 SIM1 Part Memory(NOR+pSRAM) Circuit Diagram

3.7.3 GX300 SIM2 Part Main Memory (PF38F3050M0Y3DF, U401)

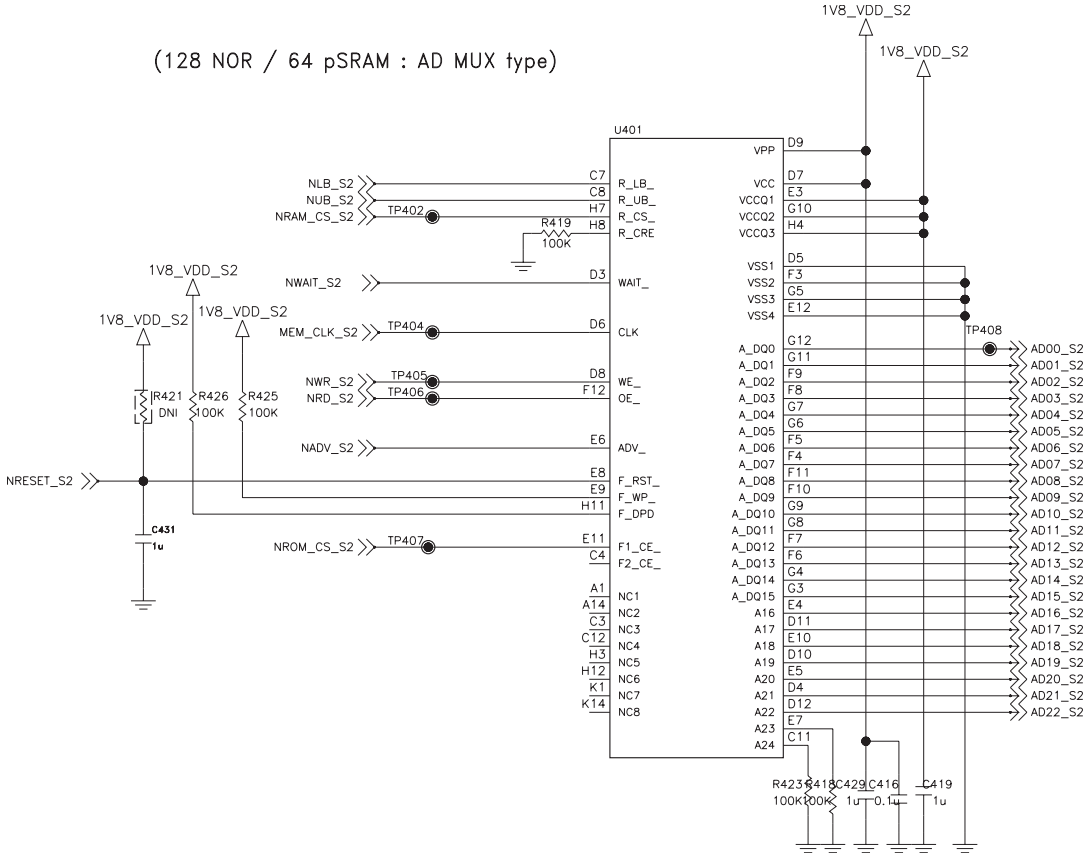


Figure. 3.7.3 SIM2 Part Main Memory(NOR+pSRAM) Circuit Diagram

3.7.4 Dual Port Memory (CYDMX128B16-65BVXI, U400)

The CYDMX128B16 consist of an array of 16k, 8k, and 4k words of 16 dual-ported SRAM cells, IO, address lines, and control signals (CS#, ADV#, OE#, and WE#). Between the two access ports, one is a dedicated time multiplexed address and data interface; the other is a pin selectable port to either standard SRAM or time multiplexed address and data interface. Independent control signals for each port permit simultaneous access to any location in memory. To handle the situation of writing and reading to the same location, a BUSY# pin is provided on each port. For port to port communication, an Interrupt (INT#) pin is also available on each port.

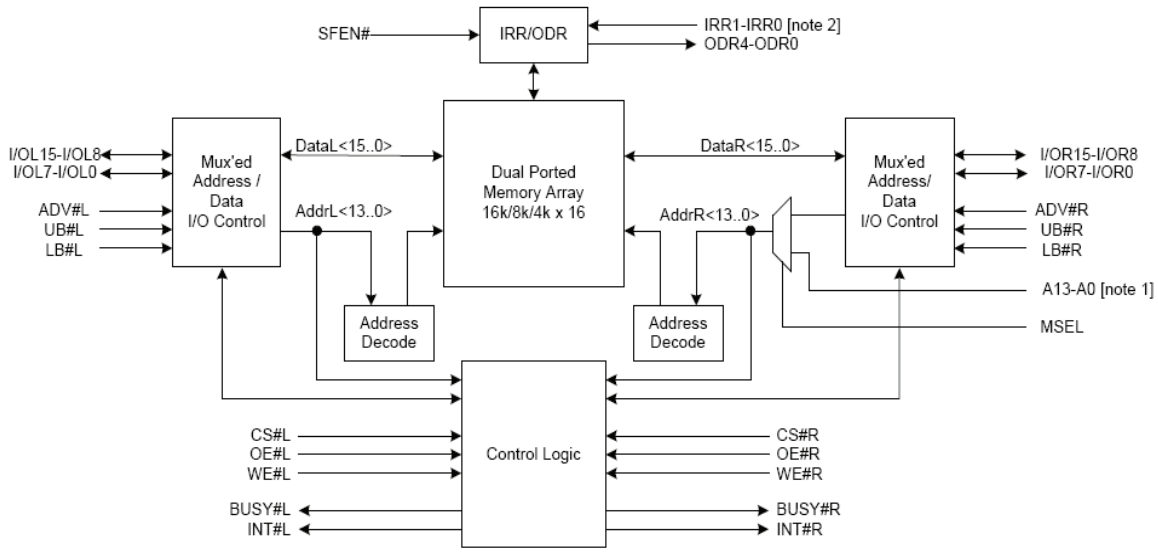


Figure. 3.7.4 Dual Port MEMORY BLOCK DIAGRAM

3.7.5 GX300 Dual Port Memory (CYDMX128B16-65BVXI, U400)

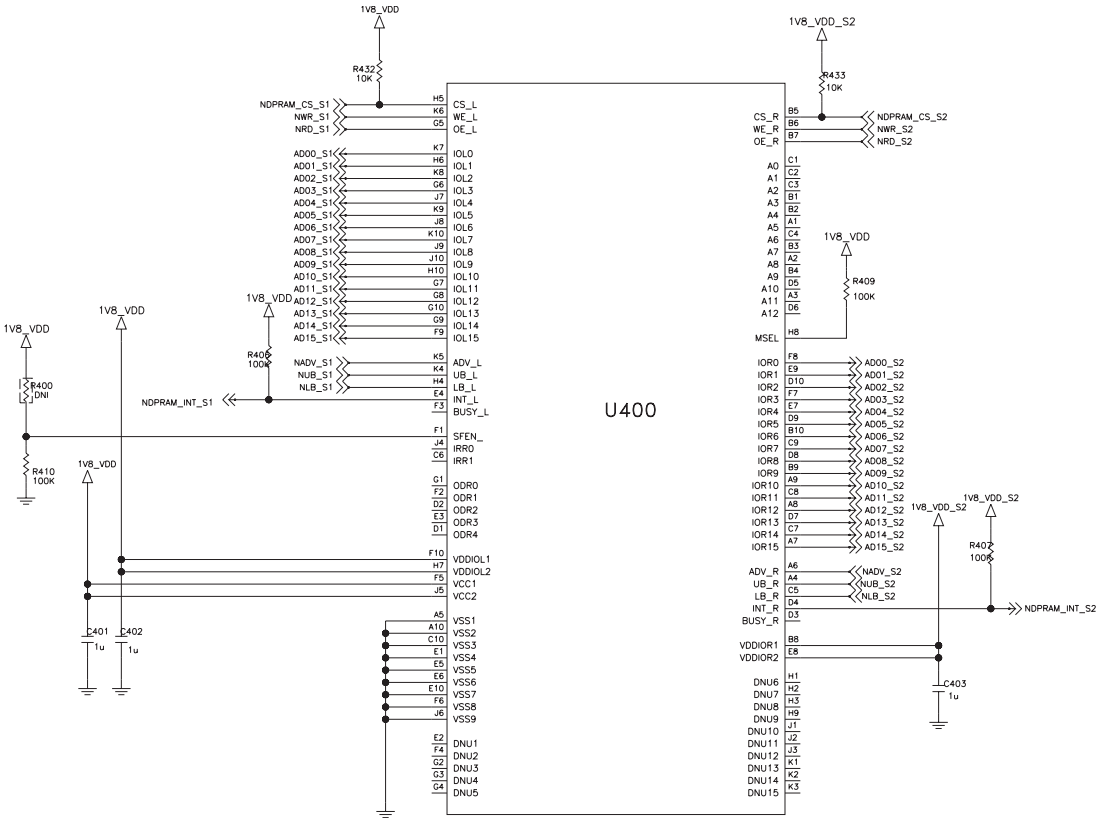


Figure. 3.7.3 Dual Port Memory Circuit Diagram

3.8 Bluetooth module

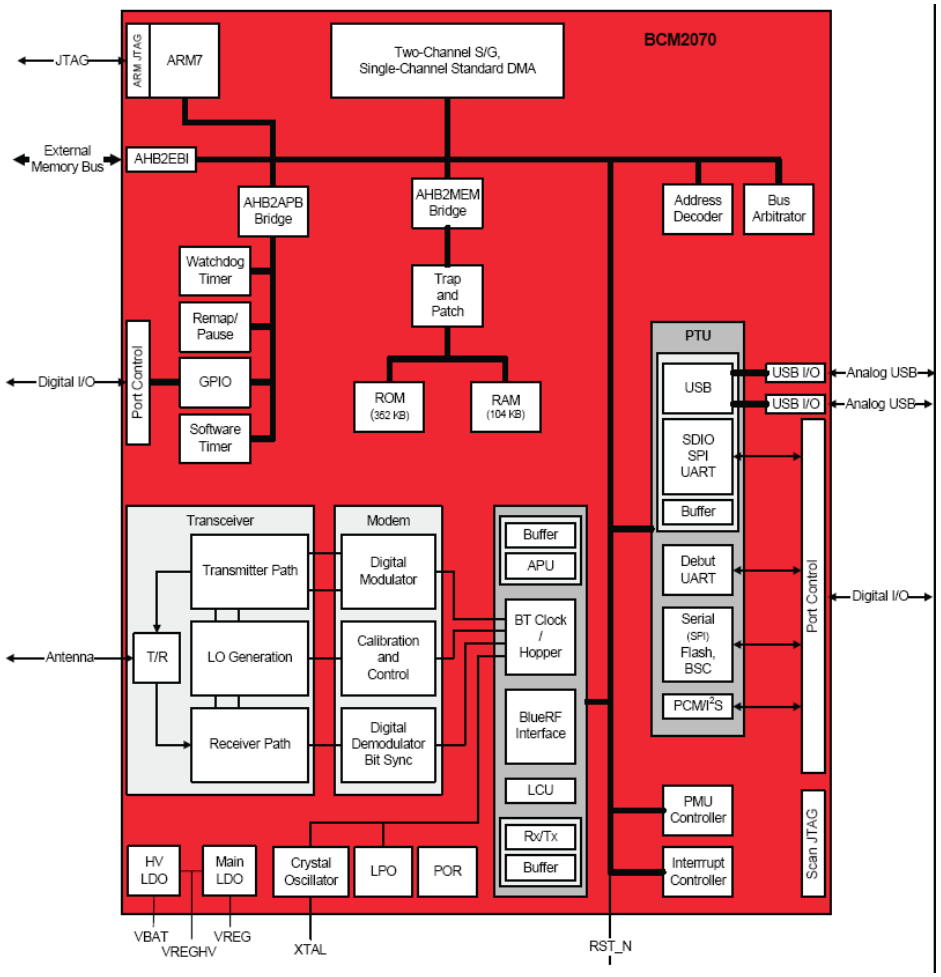


Figure 3.8.1. Bluetooth BLOCK DIAGRAM

This module has an integrated radio transceiver that has been optimized for use in 2.4GHz Bluetooth Wireless systems. It has been designed to provide low-power, robust communications for applications Operating in the globally available 2.4GHz unlicensed ISM band. It is fully compliant with the Bluetooth Radio Specification and enhanced data rate specification and meets or exceed the requirement to provide the highest communication link quality of service.

3.8.1 Transmitter path

This module features a fully integrated zero IF transmitter. The baseband transmitted data Is digitally modulated in the modem block and up-converted the 2.4GHz ISM band in the Transmitter path. The transmitter path consists of signal filtering, I/Q up-conversion, high -output power amplifier(PA), and RF filtering. It also incorporates modulation schemes P/4-DQPSK for 2 Mbps and 8-DPSK for 3 Mbps to support enhanced data rate.

• Digital modulator

The digital modulator performs the data modulation and filtering required for the GFSK, B/4DQPSK, and 8-DPSK signal. The fully digital modulator minimizes any frequency drift or anomalies in the modulation characteristics of the transmitted signal and is much more Stable than direct VCO modulation schemes.

• Power Amplifier

The integrated PA for the BCM2070 is configurable for Class 2 operation, transmitting up to +4 dBm as well as Class 1 operation and transmit power up to +12 dBm at the chip, GFSK, >2.5V supply. Due to the linear nature of the PA, combined with some integrated filtering, no External filters are requires for meeting Bluetooth and regulatory harmonic and spurious requirements. For integrated mobile handset applications, where Bluetooth is integrated next to the celluar radio, minimal external filtering can be applied to achieve near thermal noise levels for spurious and radiated noise emissions.
Using a highly linearized, temperature compensated design the PA can transmit +12 dBm for Basic rate and +10 dBm for enhanced data rates(2 to 3 Mbps). A flexible supply voltage range Allows the PA to operate from 1.2V to 3.0V. The minimum supply voltage at VDDTF is 1.8V to achieve +10dBm of transmit power.

3.8.2 Receiver path

The receiver path uses a low IF scheme to down-convert the received signal for demodulation in the digital demodulator and bit synchronizer. The receiver path provides a high degree of Linearity, an extended dynamic range, and high order on-chip channel filtering to ensure reliable operation in the noisy 2.4GHz ISM bnad. The front-end topology, with built-in out -of-bnad attenuation, enables the device to be used in most applications with no off-chip Filtering. For integrated handset operation where the Bluetooth function is integrated close to the celluar transmitter, minimal external filtering is required to eliminate the desensitization of The receiver by the cellular transmit signal.

3.9 Dual SIM Card Interface

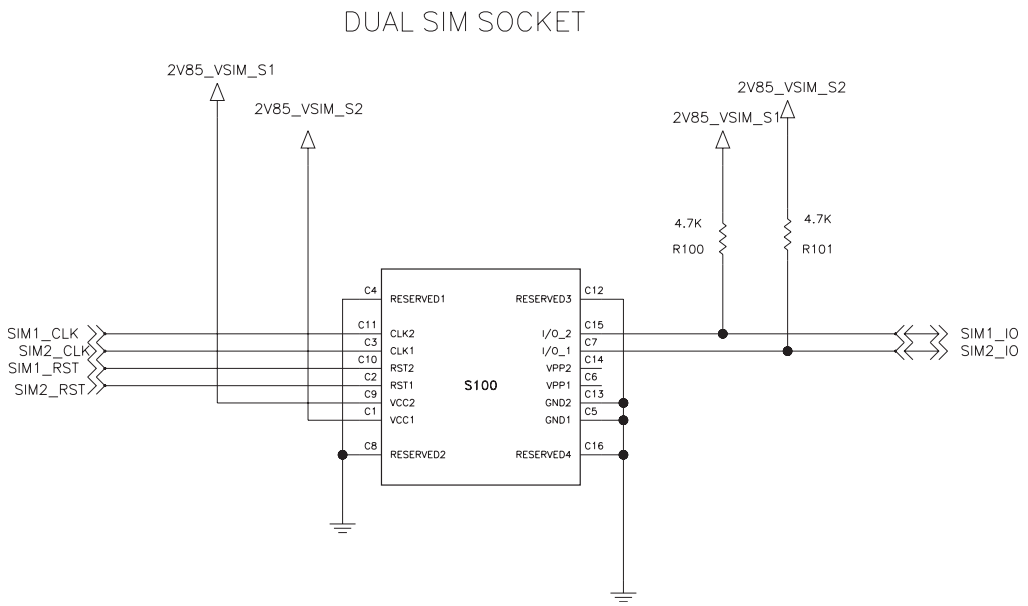


Figure 3.9.1. Dual SIM CARD Interface

The Main Base Band Processor(XMM2130) provides SIM Interface Module.
The XMM2130 checks status Periodically During established call mode whether SIM card is inserted or not, but it doesn't check during deep sleep mode. In order to communicate with SIM card, 3 signals SIM_IO, SIM_CLK, SIM_RST.

GX300 supports dual SIM mode and each SIM supports 3.0V SIM Card.
SIM interface scheme is shown in (Figure 3.9.1).
SIM_IO, SIM_CLK, SIM_RST ports are used to communicate with Main Chip(AGR+)

Signal	Description
SIM_RST	This signal makes SIM card to HW default status.
SIM_CLK	SIM card reference clock.
SIM1_IO / SIM2_IO	This signal is interface datum.

3.10 LCD Interface

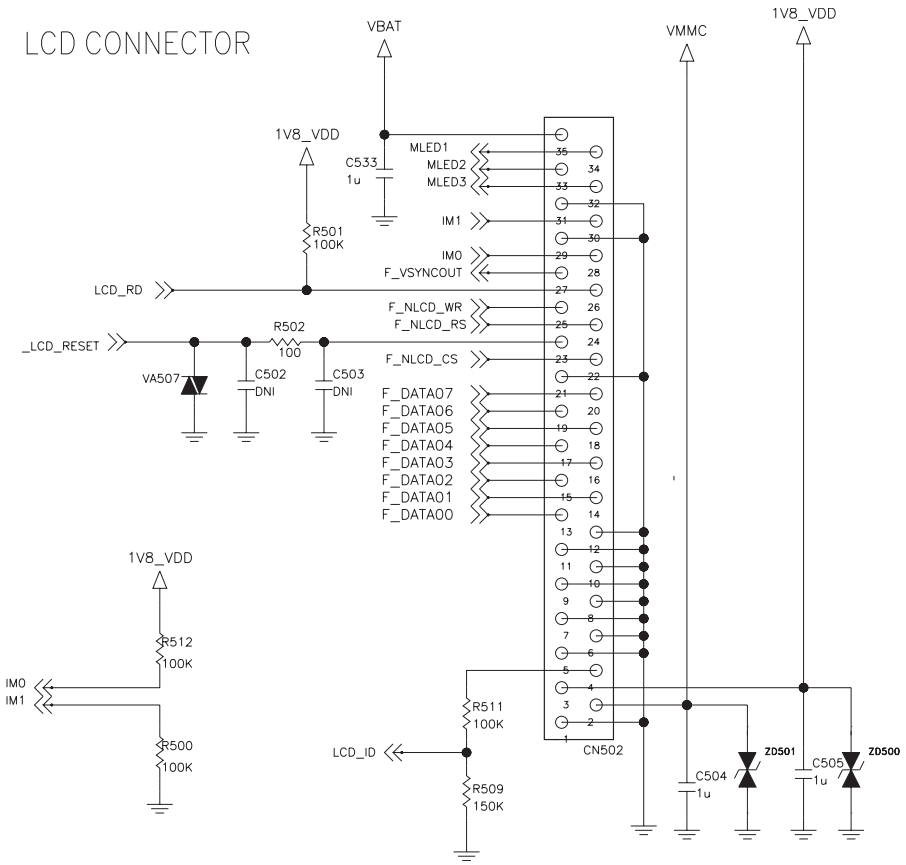


Figure 3.10.1. LCD Interface

LGDP4525B is a 262,144-color one-chip SoC driver for a-TFT liquid crystal display with resolution of 176RGBx220 dots, comprising a 528-channel source driver, a 220-channel gate driver, 87120 bytes RAM for graphic data of 176RGBx220 dots, and power supply circuit.
LGDP4525B can operate with low I/O interface power supply up to 1.65V, with an incorporated voltage follower circuit to generate voltage levels for driving an LCD.
The LGDP4525B also supports a function to display in 8 colors and a standby mode, allowing for precise power control by software.

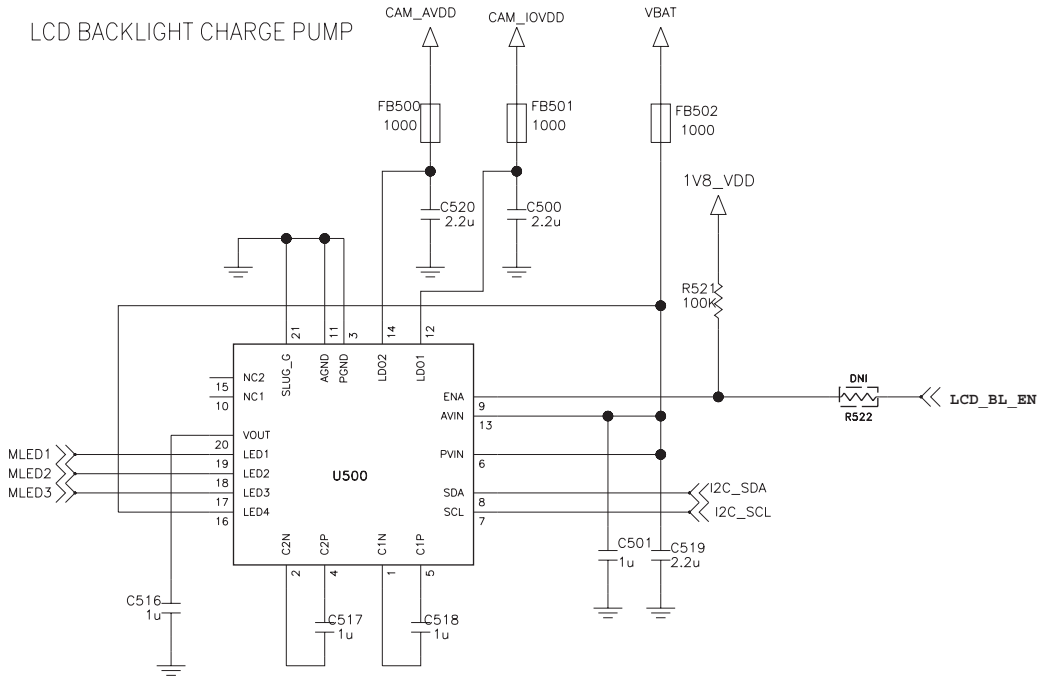


Figure 3.10.2. RT9367C CIRCUIT DIAGRAM

The RT9367C is a high efficiency charge pump LED driver using Semtech's proprietary mAhXLifeTM technology. Performance is optimized for use in single-cell Li-ion battery applications.

The charge pump provides backlight current in conjunction with four matched current sinks. The load and supply conditions determine whether the charge pump operates in 1x, 1.5x, or 2x mode. An optional fading feature that gradually adjusts the backlight current is provided to simplify control software. The RT9367C also provides two low- dropout, low-noise linear regulators for powering a camera module or other peripheral circuits.

The RT9367C uses the proprietary SemWireTM single wire interface. The interface controls all functions of the device, including backlight current and two LDO voltage outputs. The single wire implementation minimizes microcontroller and interface pin counts.

In sleep mode, the device reduces quiescent current to 100μA while continuing to monitor the serial interface. The two LDOs can be enabled when the device is in sleep mode. Total current reduces to 0.1μA in shutdown.

LED Backlight Current Sinks

The backlight current is set via the SemWire interface. The current is regulated to one of 32 values between 0.5mA and 25mA. The step size varies depending upon the current setting. Between 0.5mA and 12mA, the step size is 0.5mA. The step size increases to 1mA for settings between 12mA and 15mA and 2mA for settings greater than 15mA. This feature allows fi ner adjustment for dimming functions in the low current setting range and coarse adjustment at higher current settings where small current changes are not visibly noticeable in LED brightness.

All backlight current sinks have matched currents, even when there is variation in the forward voltages (△VF) of the LEDs. A △VF of 1.2V is supported when the input voltage is at 3.0V. Higher △VF LED mis-match is supported when VIN is higher than 3.0V. All current sink outputs are compared and the lowest output is used for setting the voltage regulation at the VOUT pin. This is done to ensure that suffi cient bias exists for all LEDs.

The backlight LEDs default to the off state upon powerup. For backlight applications using less than four LEDs, any unused output must be left open and the unused LED driver must remain disabled. When writing to the Backlight Enable Control register, a zero (0) must be written to the corresponding bit of any unused output.

Backlight Quiescent Current

The quiescent current required to operate all four backlights is reduced by 1.5mA when backlight current is set to 4.0mA or less. This feature results in higher efficiency under light-load conditions. Further reduction in quiescent current will result from using fewer than four LEDs.

3.11 Battery Charger Interface

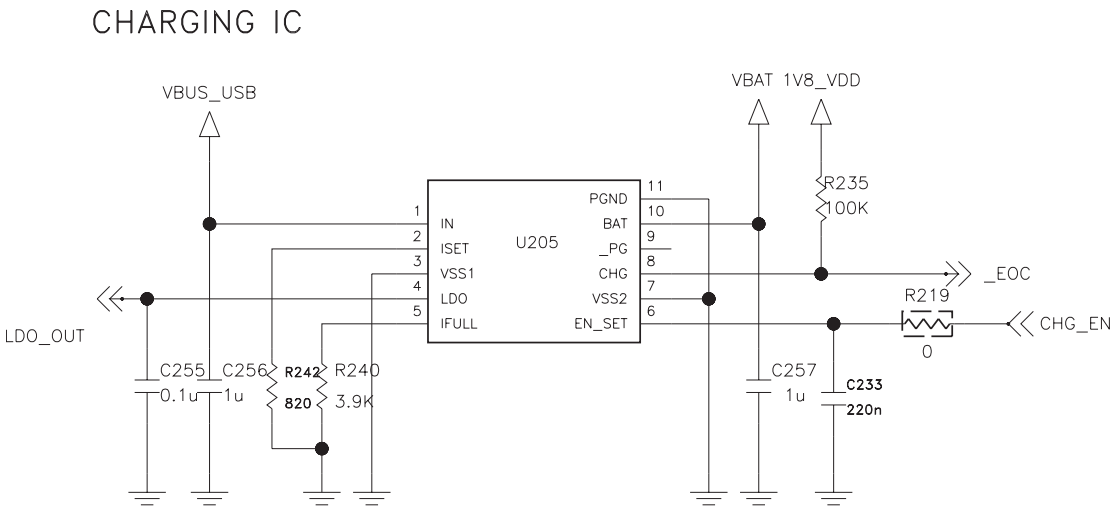


Figure 3.11.1 BATTERY CHARGER BLOCK

The BQ25040 is an intelligent, stand-alone constant current, constant-voltage (CCCV), thermally regulated dual input linear charger designed for charging a single-cell lithium-ion (Li+) battery.

The IC controls the charging sequence from the prequalification state through constant current fast charge, top-off charge, and full-charge indication.
Proprietary thermal-regulation circuitry limits the die temperature during fast charging or when the IC is exposed to high ambient temperatures, allowing maximum charging current without damaging the IC.

The BQ25040 accepts input supply range from -0.3V to 28V, but disables charging if the input voltages exceed +6.9V to protect against unqualified or faulty AC adapters cables. The IC operates over the extended temperature range (-40˚C to +85˚C)

3.12 Keypad Interface

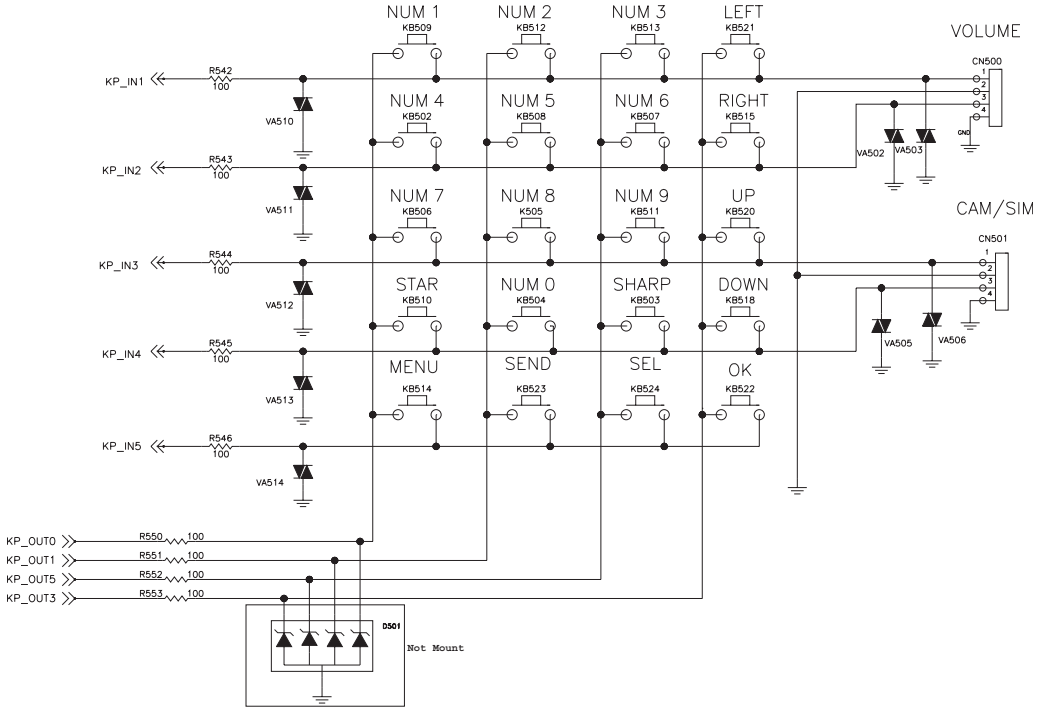


Figure 3.12.1 MAIN KEY STRUCTURE

The Keypad Interface is a peripheral controller, which can be used for scanning external keypad matrices with up to 8 rows and 8 columns (that is 64 standard keys). By adding an additional row of keys connected to ground the number of keys can be extended by up to 8 keys. This results in a maximum number of 72 keys to by identified by the Keypad Interface Controller.
The Keypad Scan Module reduces the number of interrupts and polling through the processor and therefore reduces the power consumption. The module is able to debounce and scan the external keypad matrix automatically without any software intervention. After debouncing it generates an interrupt. The interface controller contains information about the key (or key combination) that was pressed and how long it was pressed.

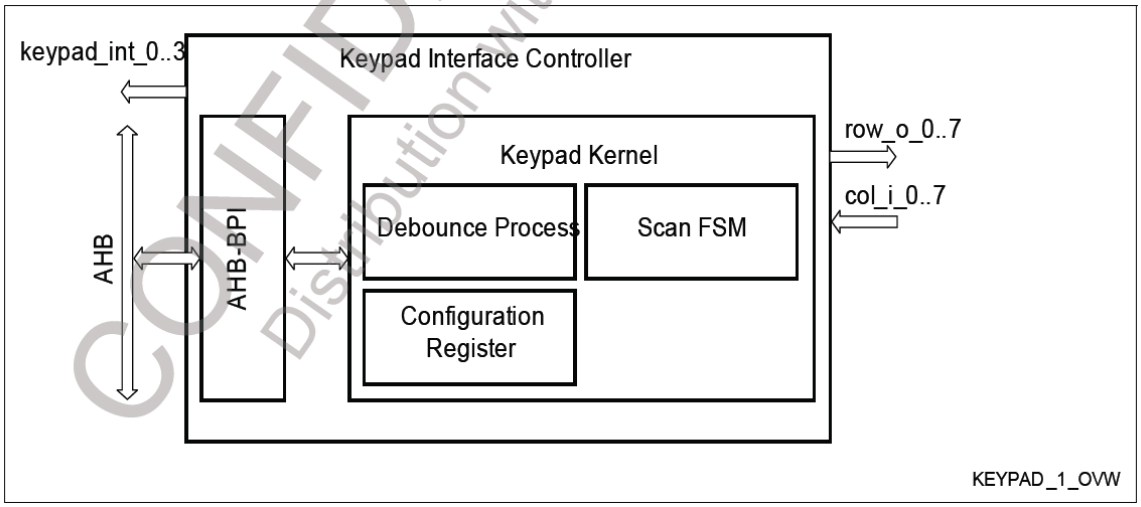


Figure 3.12.1 Block Diagram and System Integration of the KPD

3.13 Audio Front-End

3.13.1 Functional Overview

The audio front-end of X-GOLD™213 offers the digital and analog circuit blocks for both receive and transmit audio operation, from a mobile phone perspective (called audio-in and audio-out subsequently). It features a high-quality, stereo digital-to-analog path with amplifier stages for connecting acoustic transducers to X-GOLD™213. In audio-in path the supply voltage generation for electret microphones, a low-noise amplifier and analog to digital conversion are integrated in X-GOLD™213. A more detailed functional description will be given in the following sections.

The audio front-end itself can be considered to be organized in three sub-blocks:
• Interface to processor cores (TEAKLite® and - indirectly - ARM)
• Digital filters
• Analog part

The following figure shows an architecture overview of the Audio section.

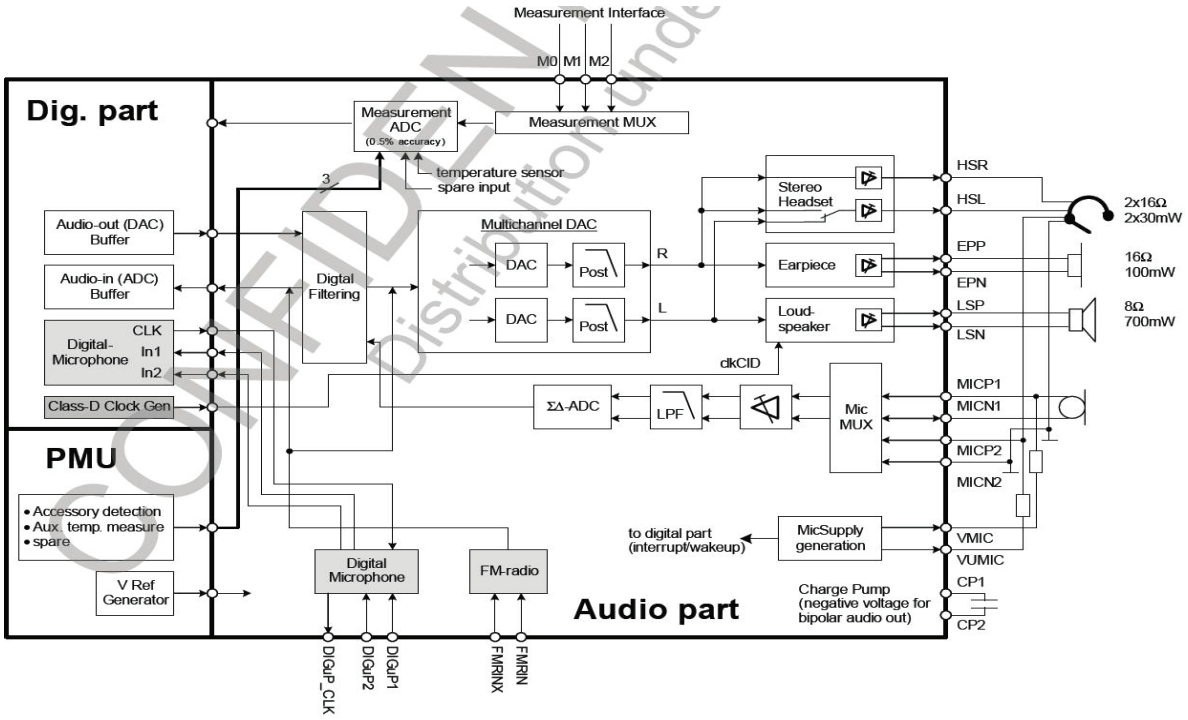


Figure 3.13.1 Audio Section Overview

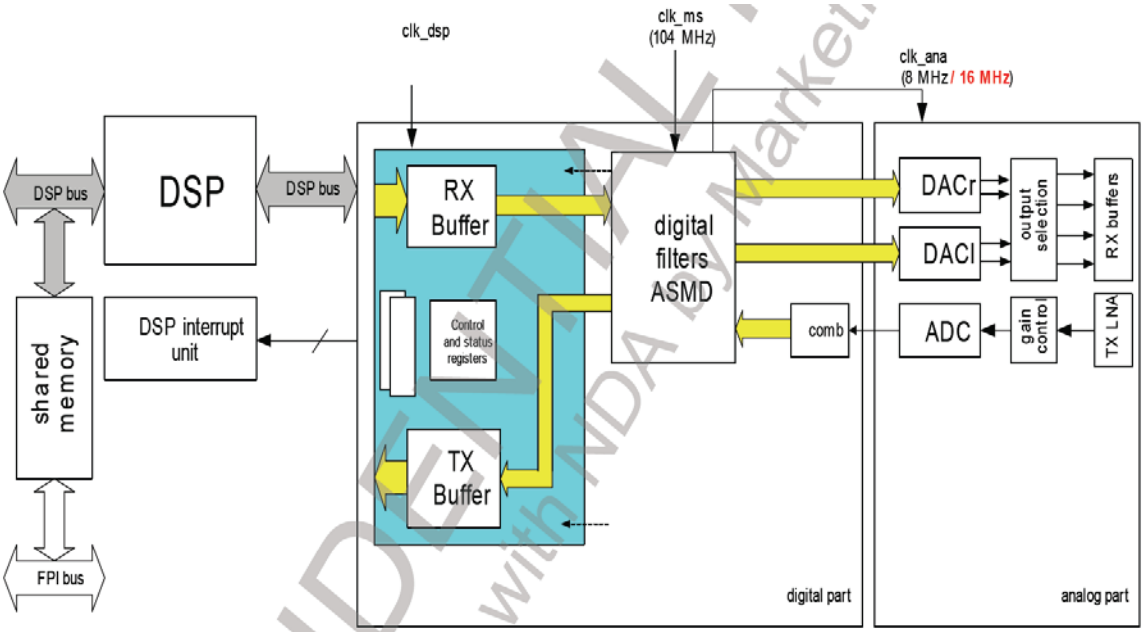


Figure 3.13.2 Overview of Clocking and Interfaces of Audio Front End

The audio front-end of X-GOLD™213 has the following major operation modes:

• Power-down: All analog parts are in power down and all clocks of the digital part are switched off.
• Audio mode: Digital decimation/interpolation filters are connected to the interface buffers and the analog part is enabled.

These major modes can be modified by certain control register settings.
• Due to the new gain settings in the TX path, the maximum input voltage is limited to 0.8 Vpp.
• In both voiceband paths, the value range for voice samples is confined to 97.5%, i.e. to [-31948, 31947] or [8334H, 7CCBH] in X-GOLD™213.
• On the TX path, 83% "1"s on the VTPDM line correspond to a 16-bit value of 7CCBH and 17% "1"s correspond to a 16-bit value of 8334H at the digital filter output. Thus the usable range is 66%. This range can be scaled to 100% by Firmware.
• The high-pass functions of the voiceband filters have to be implemented in firmware on TEAKLite®.

3.13.2 Digital Part

The digital part of the X-GOLD™213 audio front-end comprises an interface to the TEAKLite® bus, interfaces to the interrupt units of TEAKLite®, digital interpolation filters for oversampling digital-to-analog conversion, digital decimation filters for analog-to-digital conversion and an interface to the analog part of the audio front-end. For the digital microphone all the filtering is done in a dedicated hardware. The output sample stream is then fed in a duplicated ring buffer structure like the data from the analog microphone path (after A/D conversion and subsequent digital filtering).

▪ Interpolation Filter
The interpolation path of the X-GOLD™213 audio front-end increases the sampling rate of the audio samples to the rate of the digital-to-analog converter. Because the input sampling rates can vary between 8 kHz and 47.619 kHz the filter characteristic and oversampling ratio can be adjusted to the respective sampling rate. The requirements for the interpolation filters depend on the sampling rate, because a sufficient out-of-band discrimination in the audio frequency band (20 Hz,...,20 kHz) has to be ensured.

▪ Decimation Filter
The digital decimation filter on X-GOLD™213 has two operating modes: 8 kHz output sampling rate and 16 kHz output sampling rate (or 16 kHz output sample rate and 16kHz bandwidth in case of doubled ASMD clock).

3.13.3 Analog Part

The analog part of the X-GOLD™213 audio front-end in audio-out direction consists of a stereo digital to analog converter (multi-bit oversampling converter) which transforms the output of the digital interpolation filter into analog signals. It is followed by the gain control/amplifier section. The DAC outputs can be switched to several output buffers. In audio-in section there is an input multiplexer which selects either one of two differential microphone inputs to be connected to the low-noise amplifier and analog pre-filter. The signals from the analog pre-filter are input to a second-order sigma-delta analog-to-digital converter. In addition there is a connection for FM-radio playing.

▪ Audio-out Part
The analog audio-out part consists of two multi-bit digital-to-analogue converters (DAC) and an output stage. The signal sources are switched to the output drivers in the output stage. The output drivers consist of: a) one mono, differential class-D Loudspeaker driver, b) one mono, differential Earpiece driver and c) one stereo, single-ended (with uni- or bipolar signals), Headset driver.

▪ **Digital-to-analog converters**

The multi-bit oversampling DACs of the X-GOLD™213 audio front-end convert the 16-bit data words coming from the digital interpolation filters to analogue signals.

▪ **Output Amplifier**

The different output buffers in X-GOLD™213 are driven by the outputs of the selection block. The differential earpiece driver can be used to drive a 16 Ω earpiece and works in differential. The two single ended headset drivers can be used to drive a 16 Ω headset. They can work unipolar mode, where an AC coupling of the headset might be needed, or can work also in bipolor mode. The differential loudspeaker driver can be used to drive a 8 Ω loudspeaker. As it is a class-D amplifier the needed suppression of the higher harmonics of the switching signals
has to be achieved by the external circuitry. The buffers are designed to be short circuit protected.

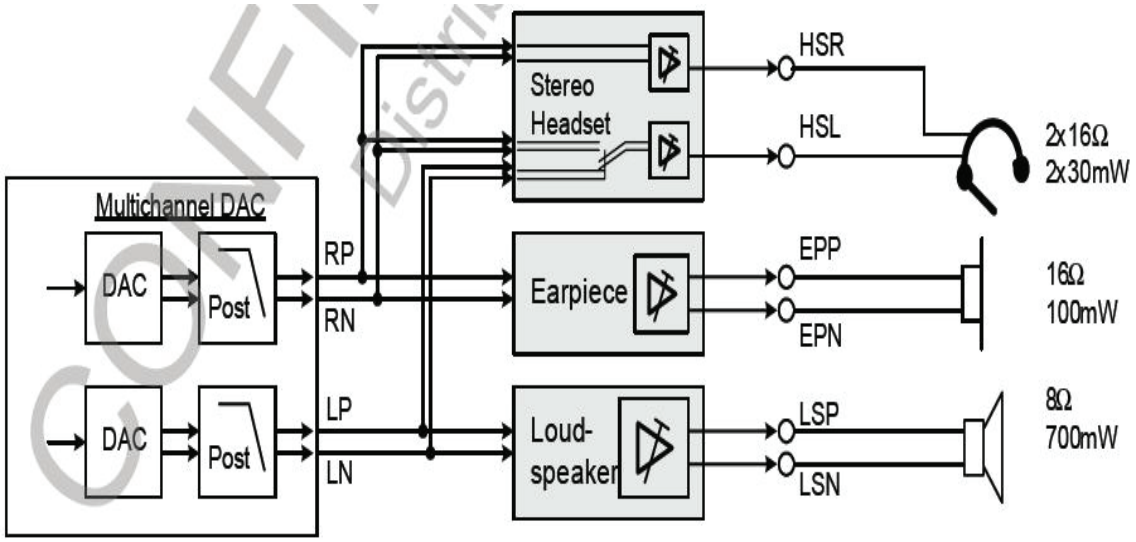


Figure 3.13.3 Switching for R/L DACs onto Buffers

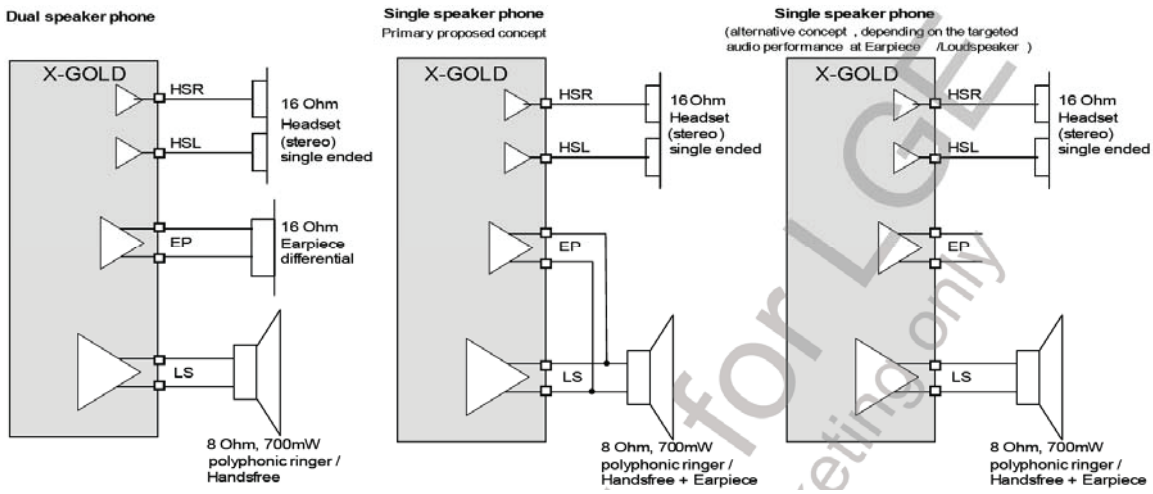


Figure 3.13.4 Different Application Scenarios

In order to achieve the single-speaker concept by parallel connection of Earpiece and Headset amplifier the Earpiece amplifier have to sustain the up to 5 V voltage of the class-D amplifier.

▪ Audio-in Path

The audio-in path of X-GOLD™213 provides two differential microphone input sources, MIC1and MIC2.

• The inputs for microphone MIC1 are MICP1 and MICN1.
• The inputs for microphone MIC2 are MICP2 and MICN2.

The audio-in path consists of an input selector, a low noise amplifier and following pre-filter with gain control, a second order ΣΔ-converter and a digital decimation filter. It supports both standard GSM (bandwidth 3.5 kHz) and wideband (bandwidth 7 kHz) speech bands.
The differential input signal from the microphone first passes a low noise amplifier and following pre-filter and an anti-aliasing pre-filtering stage achieving and overall variable gain ranging from 0 dB to +39 dB . The signal is then modulated by a second order ΣΔ-converter which is clocked with the same clock rate as the digital to analog converters. The ΣΔ-converter delivers a 1-bit pulse density modulated data stream at a rate of 2 MHz to the digital decimation filter which reduces the rate to 8 kHz or 16 kHz, depending on the current mode.
To improve SNR the sample frequency can be doubled in dedicated modes and the modulated data stream is 4MHz instead of 2 MHz.

▪ Microphone Supply

X-GOLD™213 has a single ended power-supply concept for electret microphones:
For both modes a minimal load capacitance of t.b.d. nF is necessary to guarantee stable operation of the buffer.
The maximal load capacitance must not exceed t.b.d. nF.
2 microphone supplies VMIC and VUMIC are available. The supply VUMIC has a ultra-low-power mode, where the current consumption is minimum, whilst at the same time the noise performance is reduced. For this purpose the VUMIC is directly supplied out of the VMIC regulator, the Mic-Buffer can be switched off and only the quiescent current of the VMIC regulator is present. This mode can be used to supply a headset and allow accessory detection with highly reduced current consumption For normal operation the supply can be switched to normal operation mode with improved noise performance. In case of an digital microphone VMIC can be used for supplying this microphone.

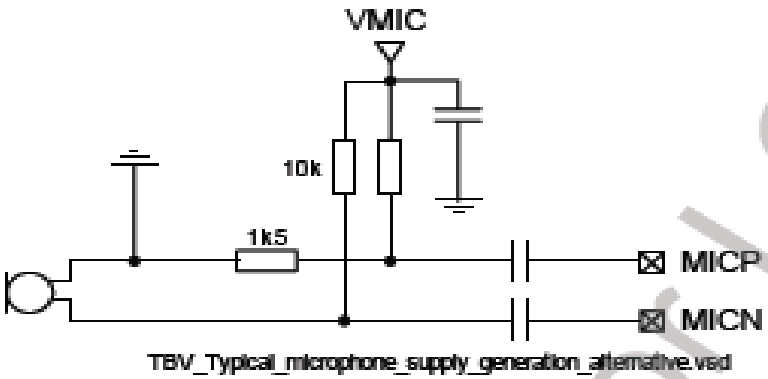


Figure 3.13.5 Typical Microphone Supply Generation (alternative)

3.14 Camera Interface(1.3M Fixed Focus Camera)

3.14.1 PMB8810 Camera Interface

The Camera Interface (CIF) represents a complete video and still picture input interface (see Figure 26).

The CIF contains image processing, scaling, and compression functions. The integrated image processing unit supports image sensors with integrated YC_bC_r processing.
Scaling is used for downsizing the sensor data for either displaying them on the LCD, or for generating data streams for MPEG-4 compression. In general, YC_bC_r 4:2:2 JPEG compressed images should use the full sensor resolution, but they can also be downscaled to a lower resolution for smaller JPEG files. Scaling also can be used for digital zoom effects, because the scalers are capable of up-scaling as well.
CIF All data is transmitted via the memory interface to an AHB bus system using a bus master interface. Programming is done by register read/write transactions using an AHB slave interface.

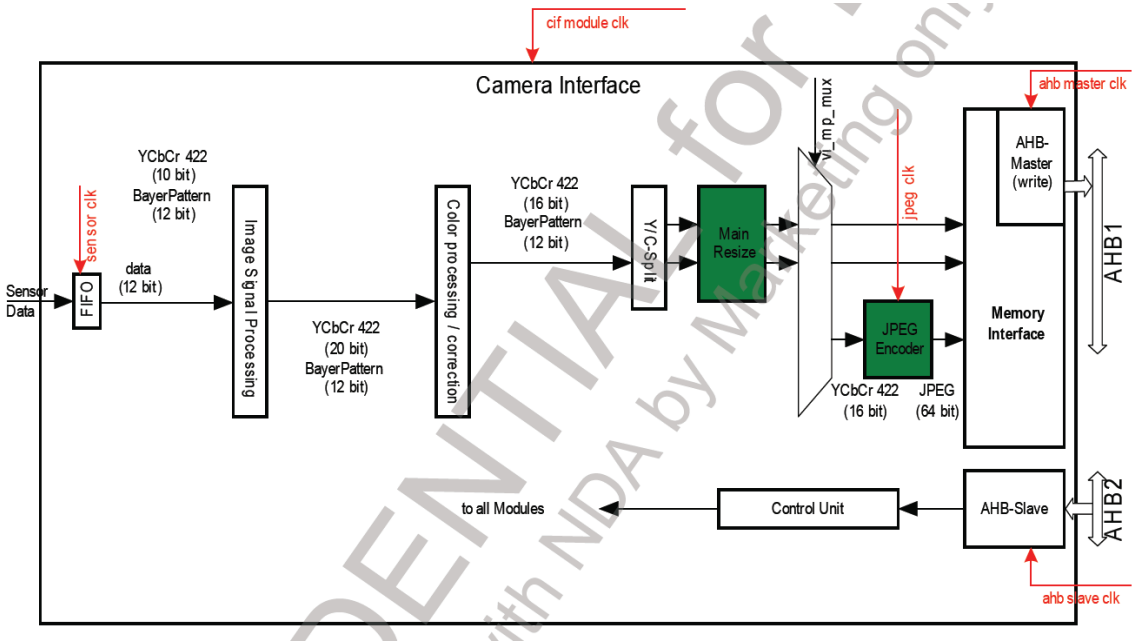


Figure 3.14.1 Block Diagram of Camera Interface

Functional Overview of CIF

The following list gives an overview over the CIF's functionality:

- 78 MHz system clock
- 78 MHz sensor clock
- 78 MHz JPEG encoder clock
- 32-bit AHB slave programming interface
- ITU-R BT 601 compliant video interface supporting YC_bC_r
- ITU-R BT 656 compliant video interface supporting YC_bC_r data
- 8-bit camera interface
- 12-bit resolution per color component internally
- YC_bC_r 4:2:2 processing
- Hardware JPEG encoder incl. JFIF1.02 stream generator and programmable quantization and Huffman tables
- Windowing and frame synchronization
- Continuous resize support
- Frame skip support for video (e.g. MPEG-4) encoding
- Macro block line, frame end, capture error, data loss interrupts and sync. (h_start, v_start) interrupts
- Programmable polarity for synchronization signals
- Luminance/chrominance and chrominance blue/red swapping for YUV input signals
- Maximum input resolution of 3 Mpixels (2048x1536 pixels)
- Main scaler with pixel-accurate up- and down-scaling to any resolution between 3 MP (2048x1536) and 32x16
- pixel in processing mode
- Buffer in system memory organized as ring-buffer
- Buffer overflow protection for raw data and JPEG files
- Asynchronous reset input, software reset for the entire IP and separate software resets for all sub-modules
- Interconnect test support
- Semi planar storage format
- Color processing (contrast, saturation, brightness, hue)
- Power management by software controlled clock disabling of currently not needed sub-modules

3.15 Flash LED Driver

The LED current can be programmed up to 1A via an I2Ccompatible interface, along with eight selectable Flash Time-Out durations. One high-current Flash LED can be driven either in a high-power Flash mode or a low-power Torch mode. The Strobe pin allows the flash to be toggled via a Flash enable signal from a camera module. The TX input pin limits the Flash LED current to the Torch current level during a RF PA pulse, to reduce high loads on the battery. Internal soft-start circuitry limits the amount of inrush current during start-up.

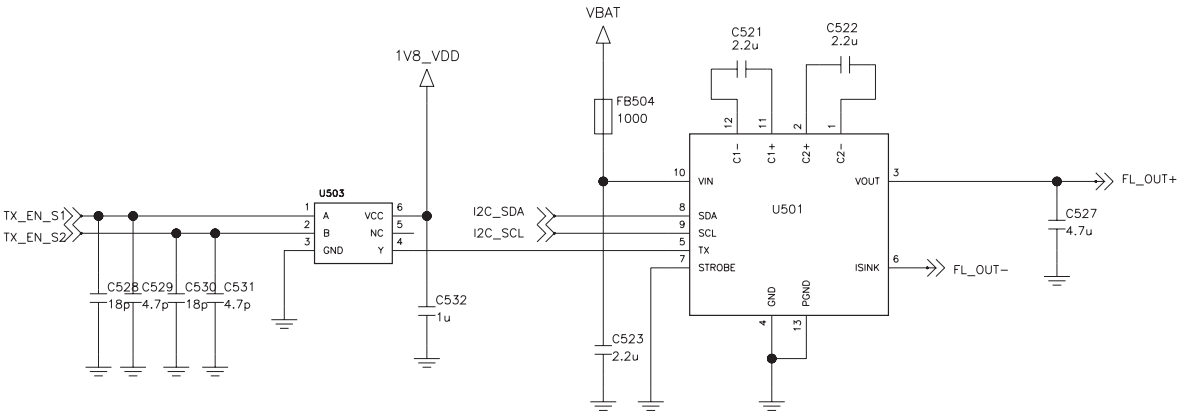


Figure 3.15.1 Flash LED Driver Circuit Diagram

3.16 KEY BACLKLIGHT LED Interface

Key Backlight LED is controlled by switch (Q500). If KEY_BL_EN is high, Current is flowing from VBAT to LED. Then Light emitted from The LED.

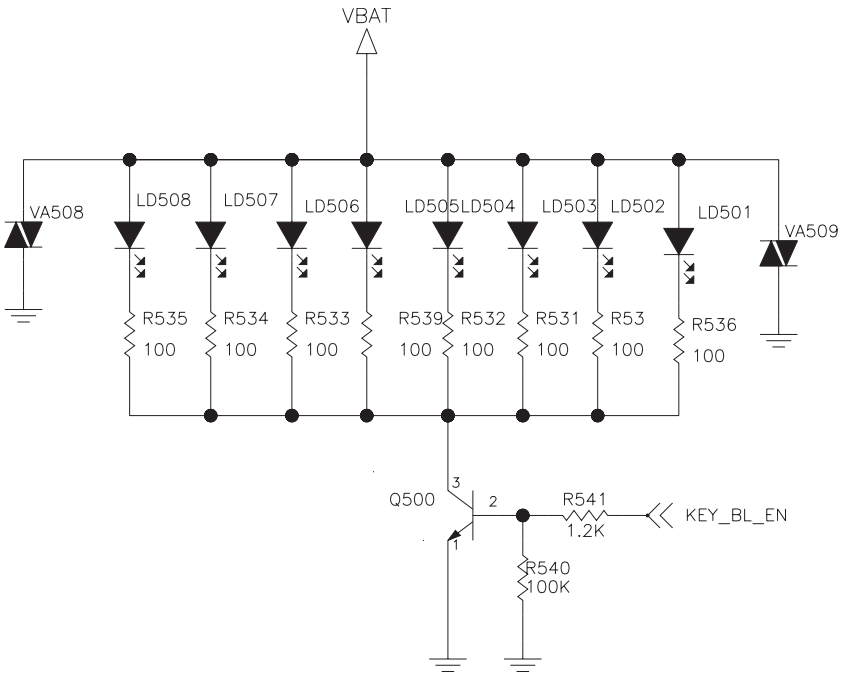


Figure 3.16.1 Key Backlight Block

3.17 Vibrator Interface

Support PWM signal which generated by hardware itself via register control
Direct connect to the VIB and VSSVIB pin from XMM2130 without any external component required
It is capable to driver the vibrator motor up to 150mA

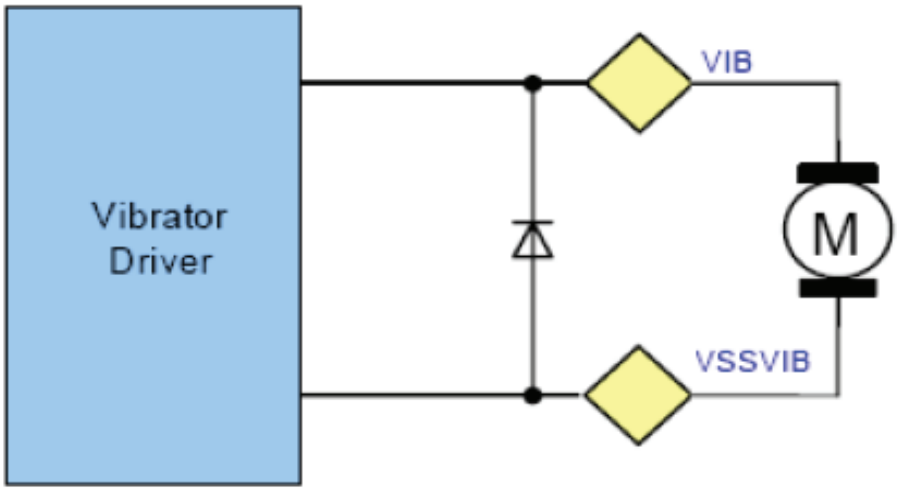


Figure 3.17.1 Vibrator Driver Block Diagram

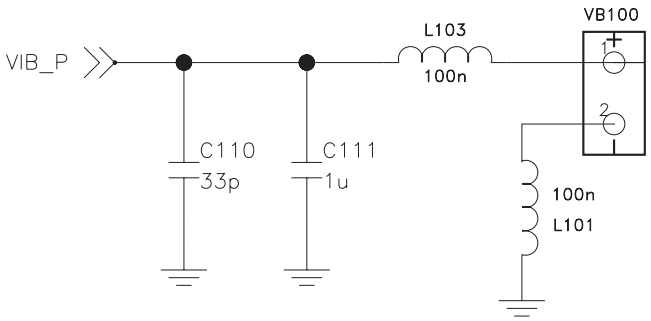


Figure 3.17.2 Vibrator Driver Block

4. TROUBLE SHOOTING

4.1 Trouble shooting test setup

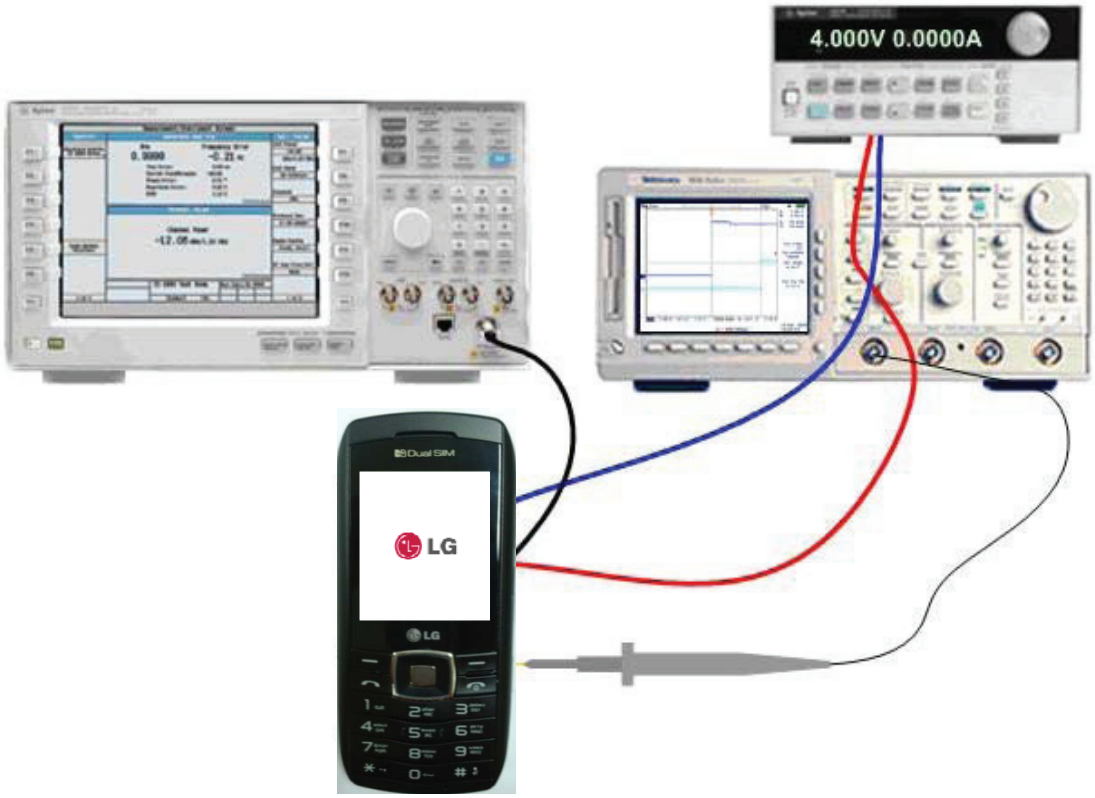


Figure 4.1.1 Equipment setup

Power on all of test equipment

- Connect PIF-UNION JIG or dummy battery to the DUT for power up.
- Connect mobile switch cable between Communication test set and DUT when you need to make a phone call.
- Follow trouble shooting procedure

4.2 RF Component

4.2.1 SIM 1 (main)

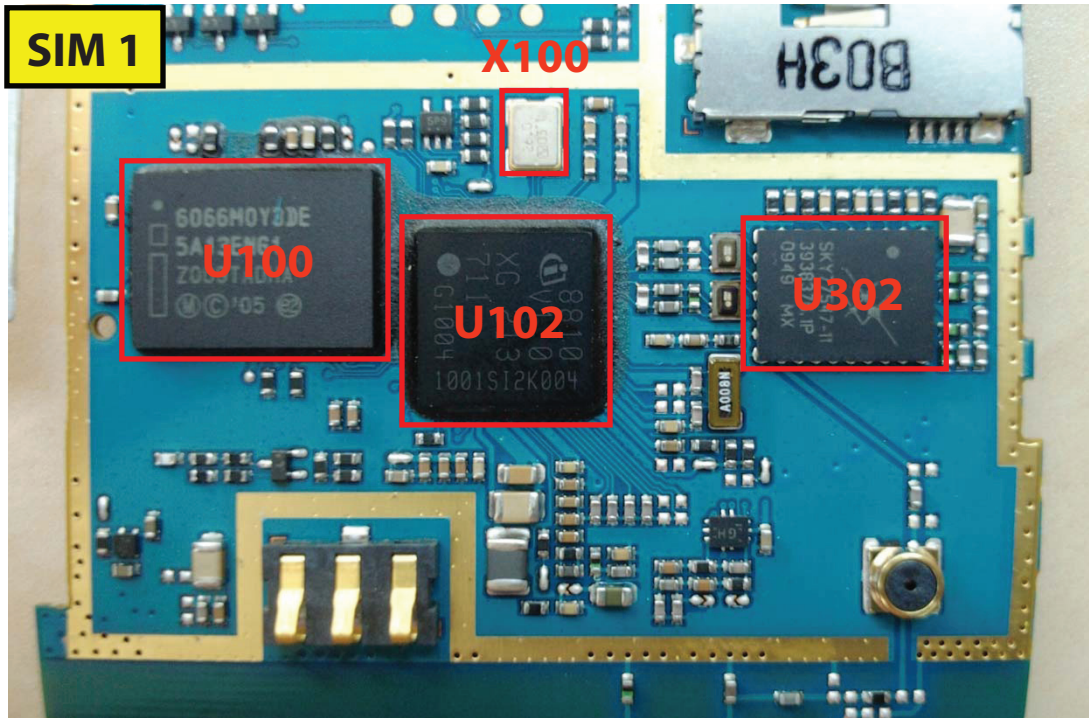


Figure 4.2.1 SIM 1 (main) block

U100	Memory(1G NOR/256pSRAM) PF38F6066M0Y3DE
U102 (PMB8810)	Main Chip (A-GOLDRADIO)
U302	FEM(Tx Module)
X100	Crystal, 26MHz Clock

4.2.2 SIM 2 (sub)

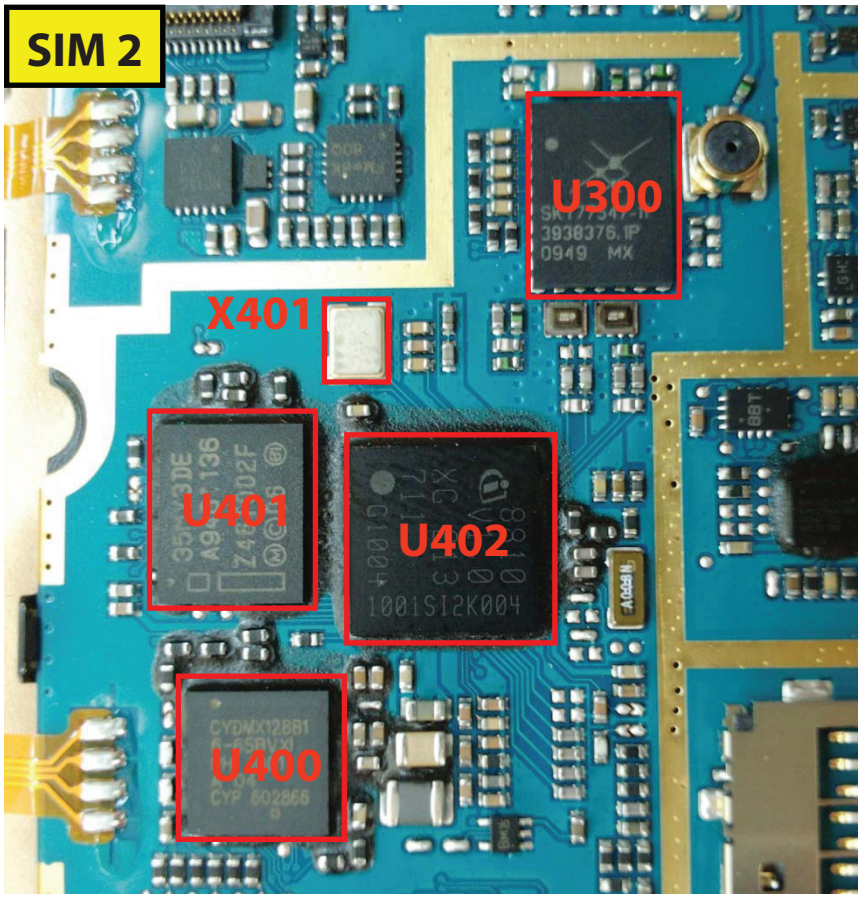
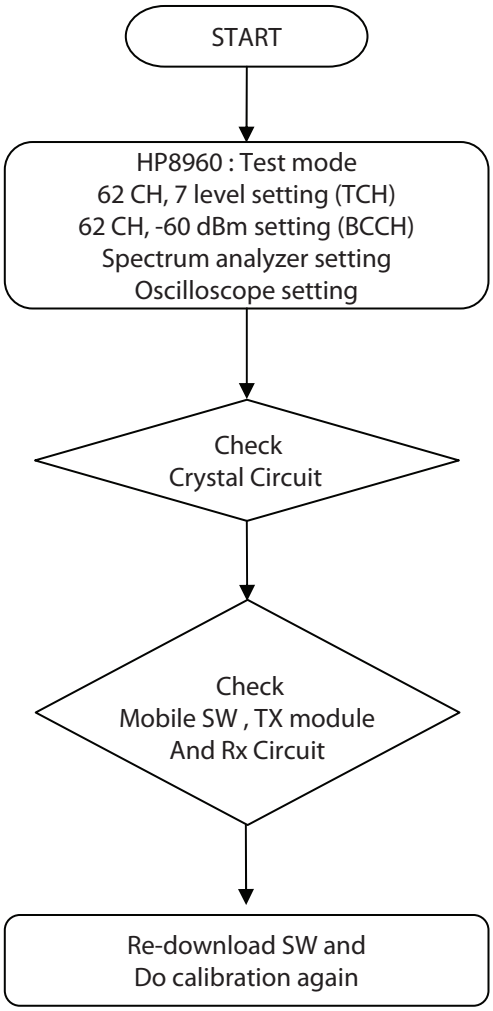


Figure 4.2.2 SIM 2 (sub) block

U401	Memory(128NOR/64pSRAM) PF38F3050M0Y3DE
U402 (PMB8810)	Sub Chip (A-GOLDRADIO)
U300	FEM(Tx Module)
U400	Memory(Dual-Port SRAM) CYDMX128B16-65BVXI
X401	Crystal, 26MHz Clock

4.3 RX Trouble

CHECKING FLOW



4.3.1 Checking Crystal Circuit

TEST POINT

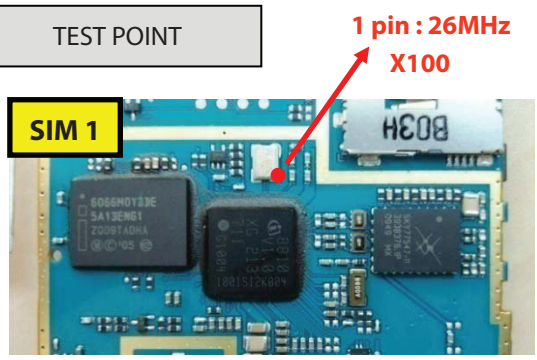


Figure 4.3.1 SIM 1 (main) crystal

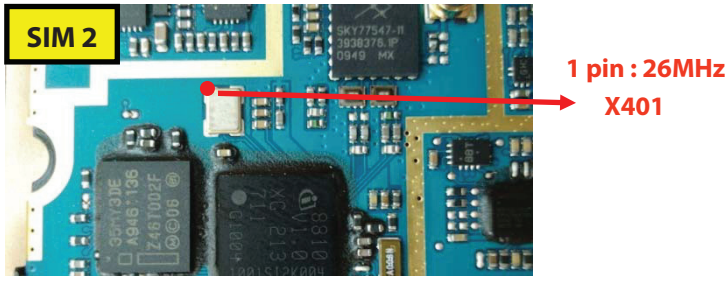
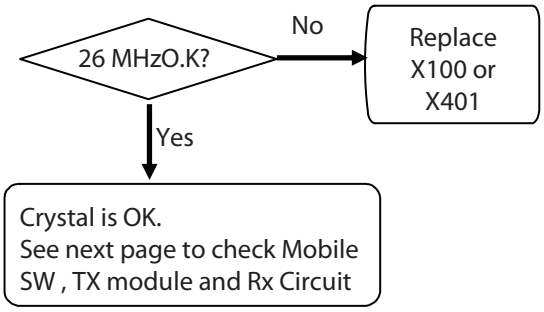


Figure 4.3.2 SIM 2 (sub) crystal

CHECKING FLOW



CIRCUIT

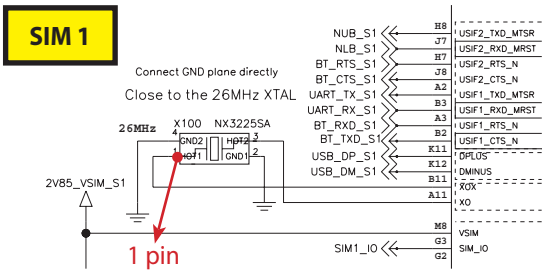


Figure 4.3.3 SIM 1 crystal circuit

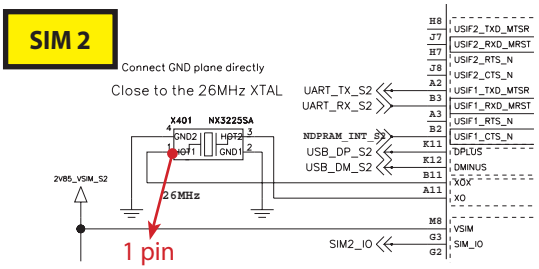


Figure 4.3.4 SIM 2 crystal circuit

WAVEFORM

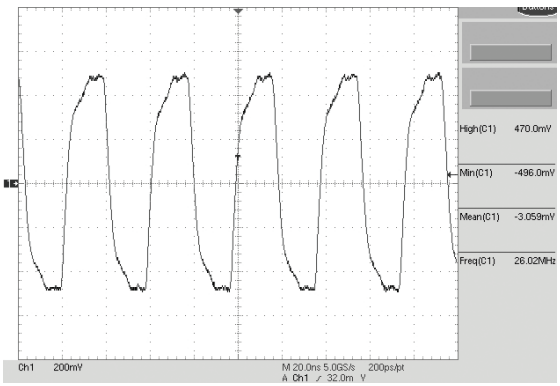


Figure 4.3.5 26MHz output waveform

4.3.2 Checking Mobile SW & FEM

TEST POINT

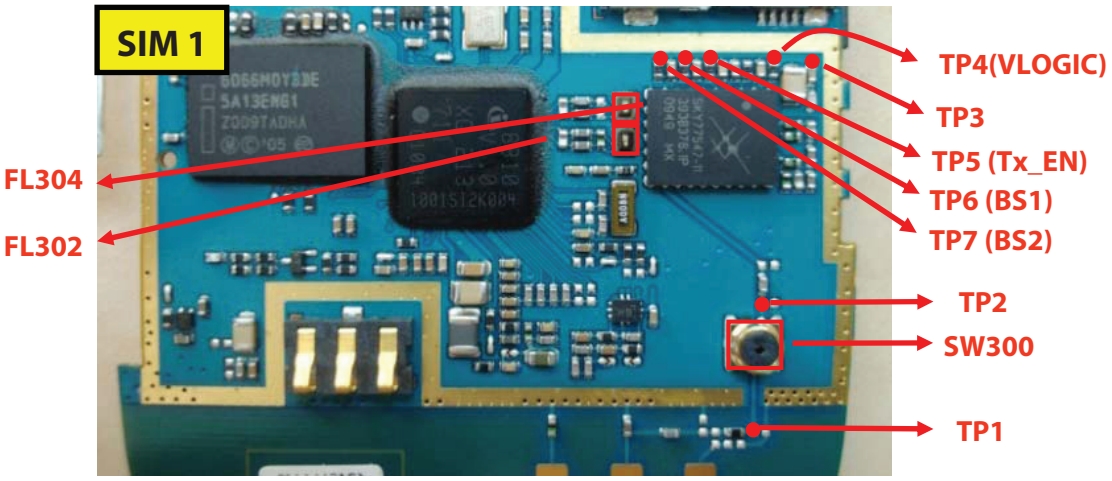


Figure 4.3.6 SIM 1 Mobile SW & FEM

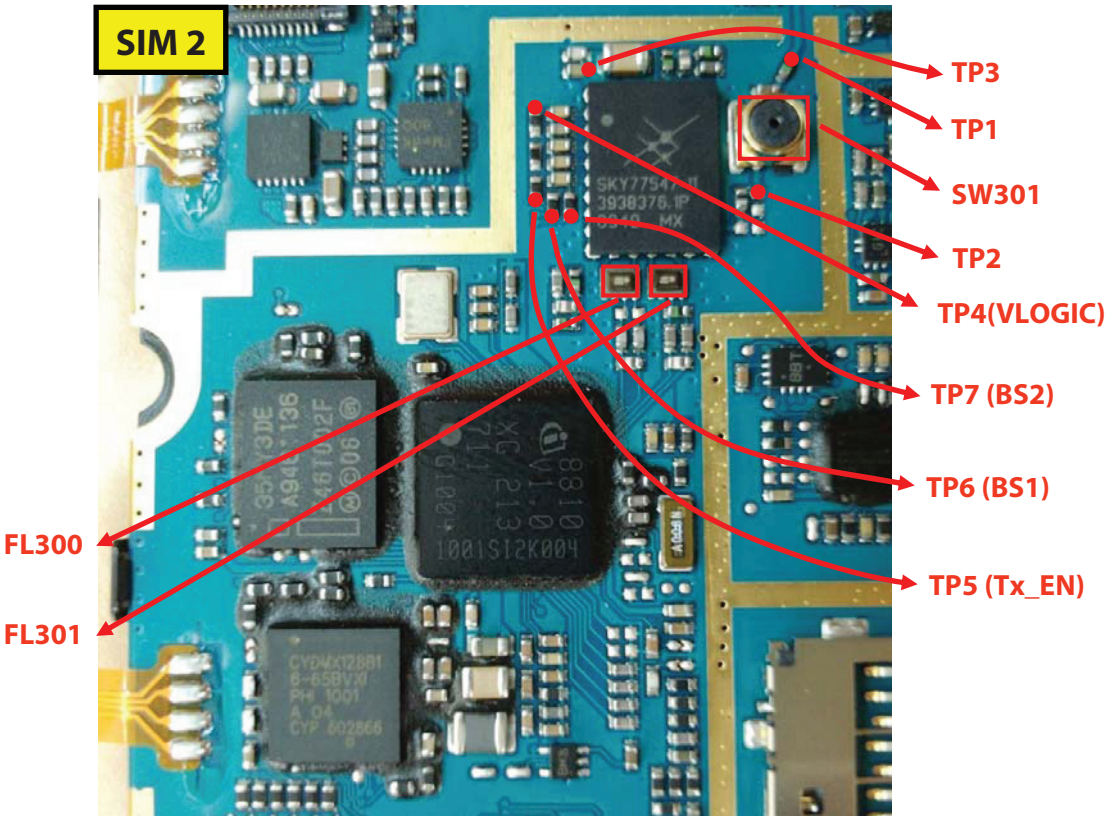


Figure 4.3.7 SIM 2 Mobile SW & FEM

CIRCUIT **SIM 1**

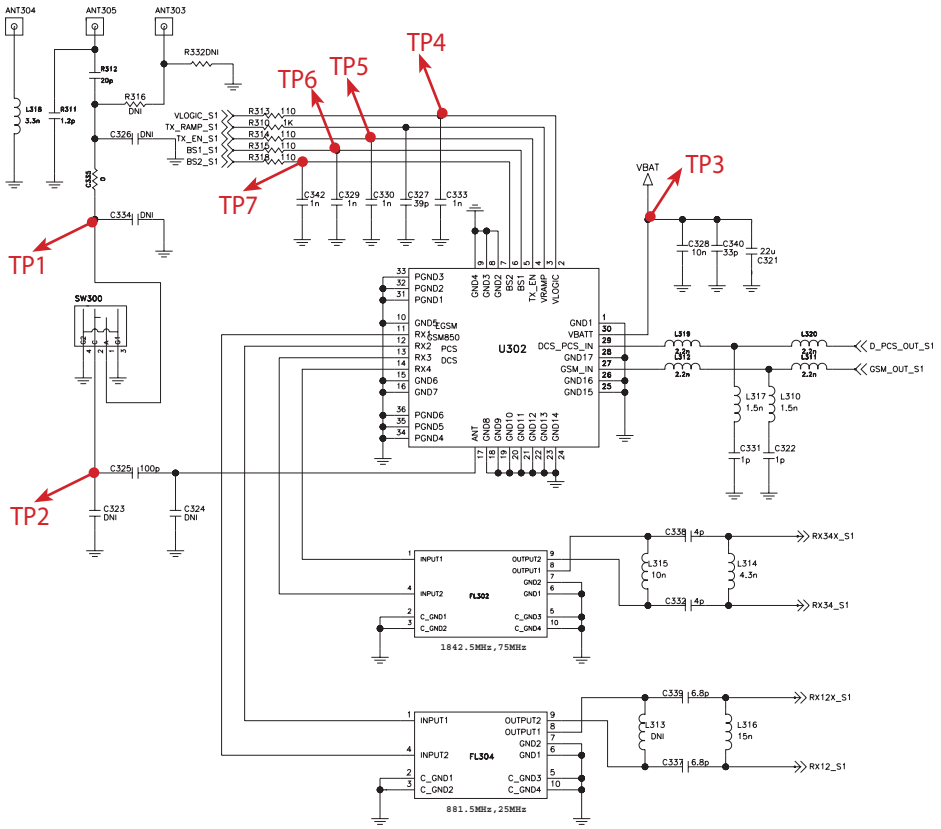


Figure 4.3.8 SIM1 Mobile SW & FEM circuit

CONTROL LOGIC

EGSM Rx

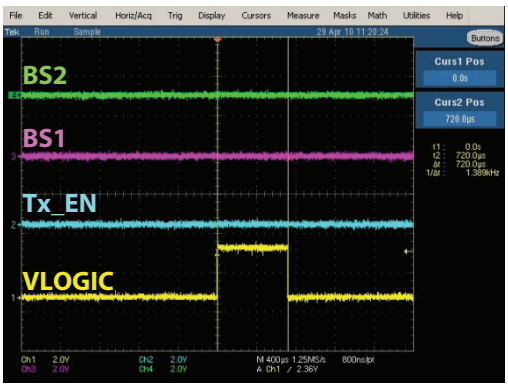


Figure 4.3.9 SIM1 TP4 ~ TP7 scope waveform

CIRCUIT

SIM 2

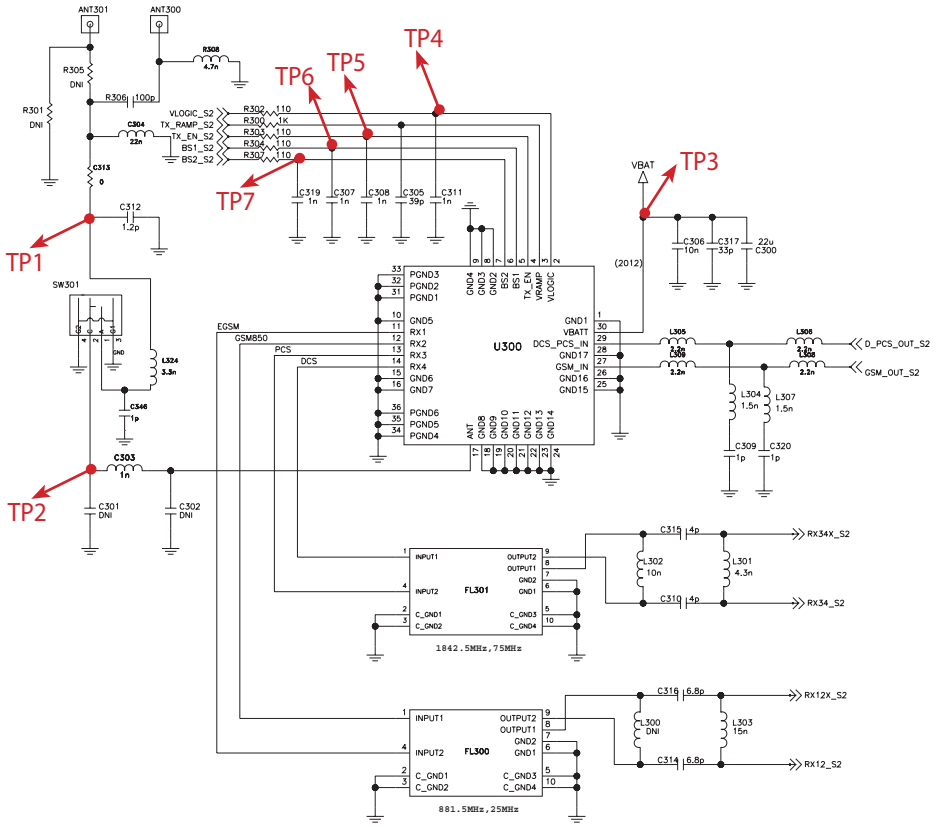


Figure 4.3.10 SIM 2 Mobile SW & FEM circuit

CONTROL LOGIC

EGSM Rx

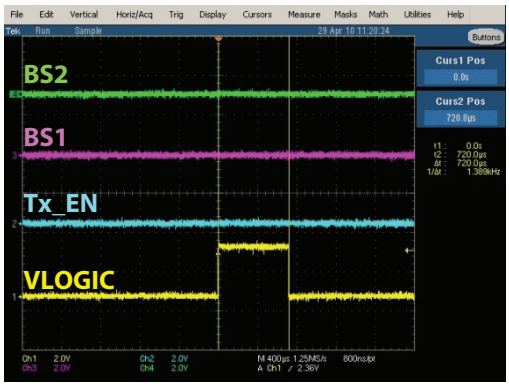
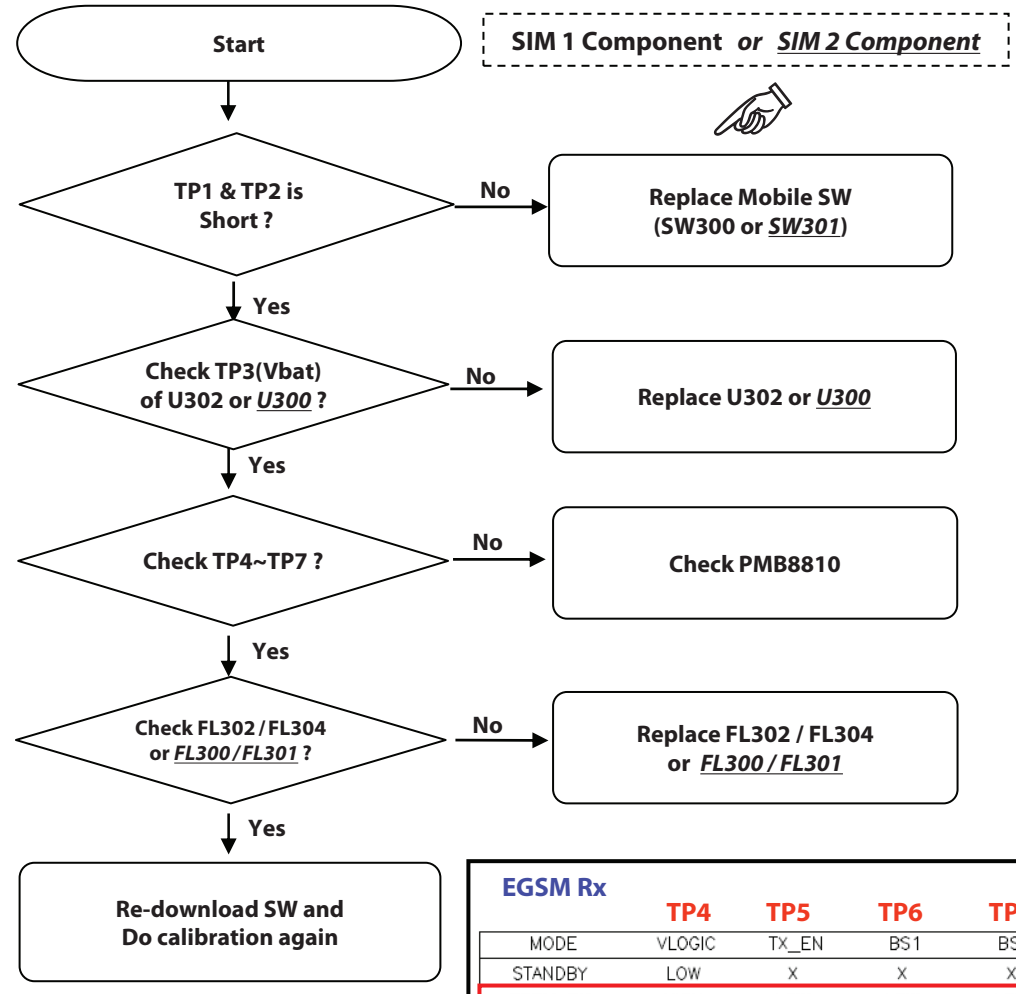


Figure 4.3.11 SIM 2 TP4 ~ TP7 scope waveform

CHECKING FLOW

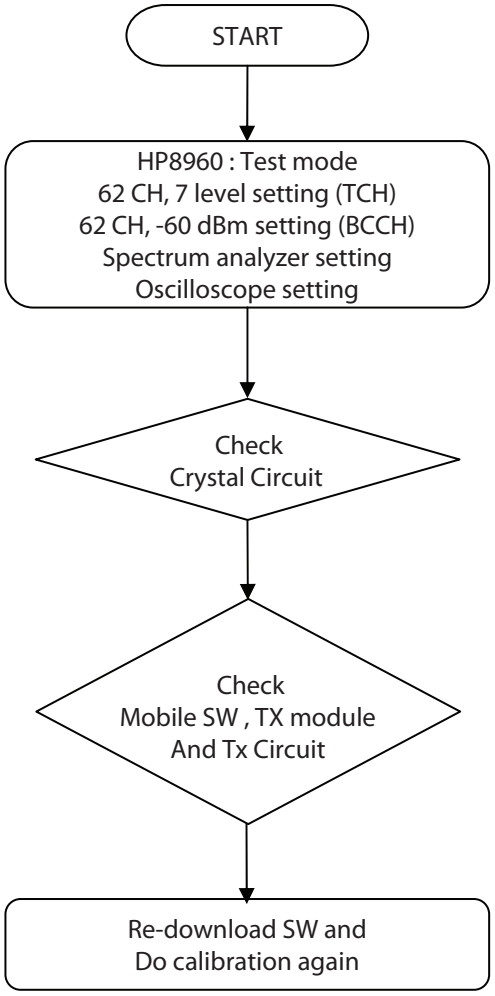


EGSM Rx

	TP4	TP5	TP6	TP7
MODE	VLOGIC	TX_EN	BS1	BS2
STANDBY	LOW	X	X	X
EGSM_RX	HIGH	LOW	LOW	LOW
GSM850_RX	HIGH	LOW	LOW	HIGH
PCS_RX	HIGH	LOW	HIGH	HIGH
DCS_RX	HIGH	LOW	HIGH	LOW
LB_TX	HIGH	HIGH	LOW	X
HB_TX	HIGH	HIGH	HIGH	X

4.4 TX Trouble

CHECKING FLOW



4.4.1 Checking Crystal Circuit

TEST POINT

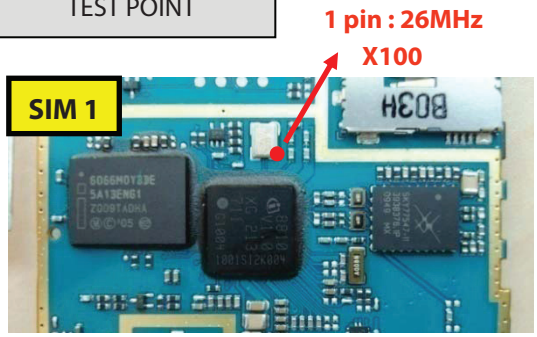


Figure 4.4.1 SIM 1 (main) crystal

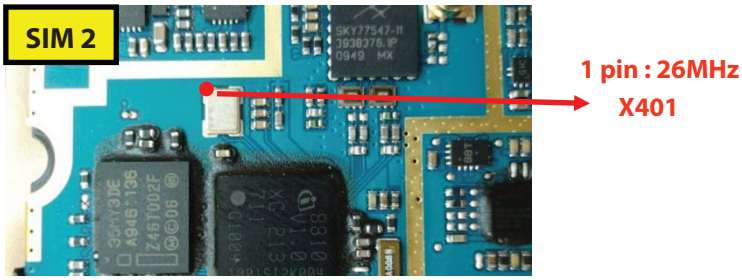
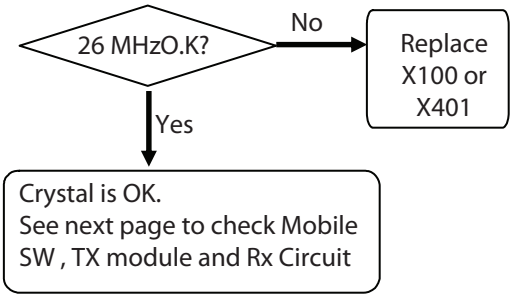


Figure 4.4.2 SIM 2 (sub) crystal

CHECKING FLOW



CIRCUIT

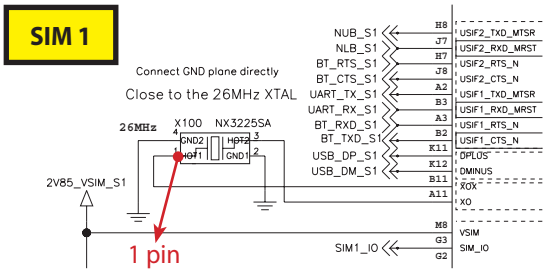


Figure 4.4.3 SIM 1 crystal circuit

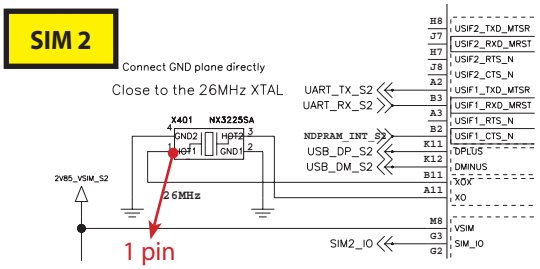


Figure 4.4.4 SIM 2 crystal circuit

WAVEFORM

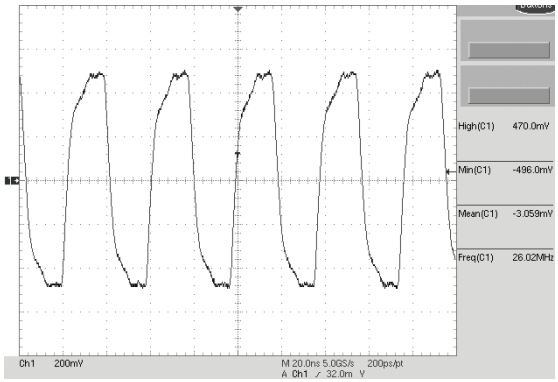


Figure 4.4.5 26MHz output waveform

4.4.2 Checking Mobile SW & TX Module

TEST POINT

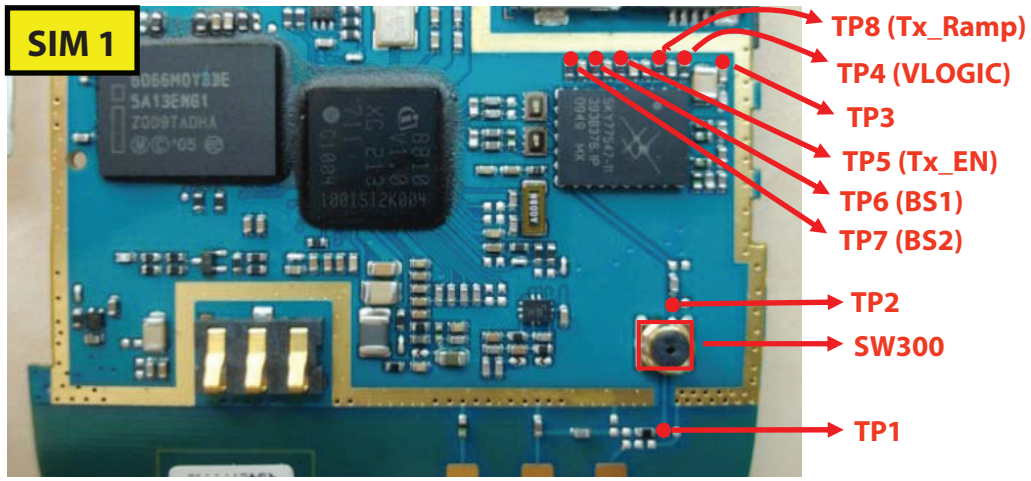


Figure 4.4.6 SIM 1 Mobile SW & TX Module

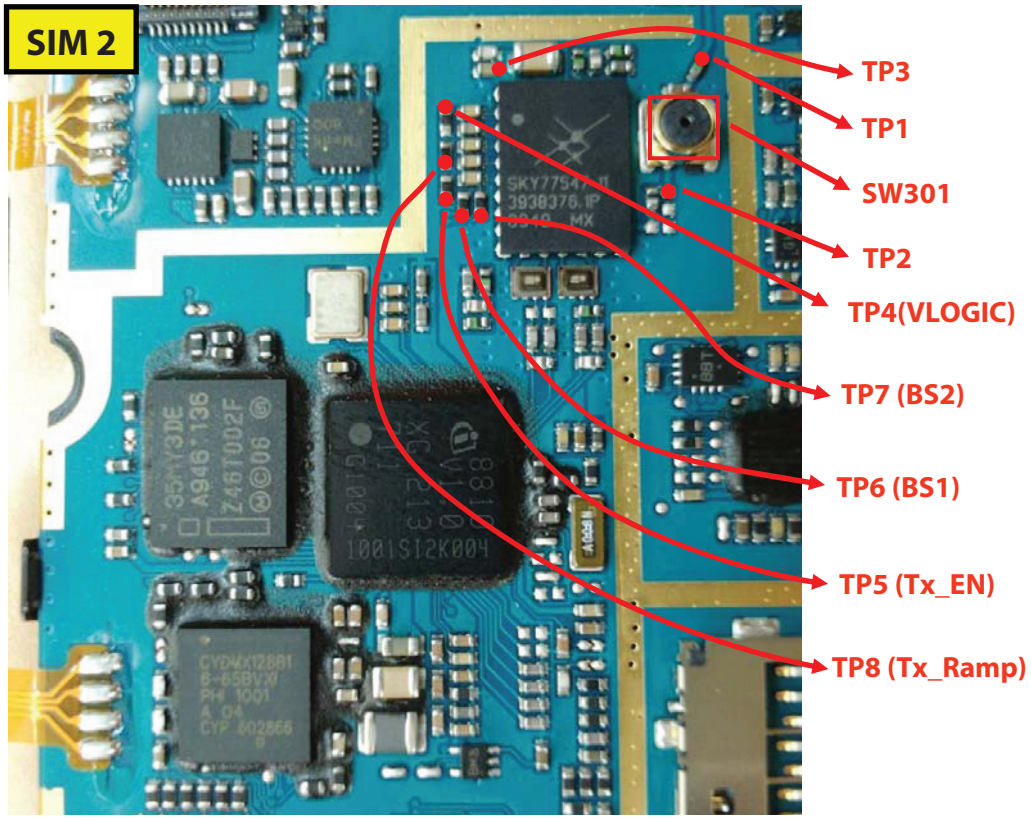


Figure 4.4.7 SIM 2 Mobile SW & TX Module

CIRCUIT **SIM 1**

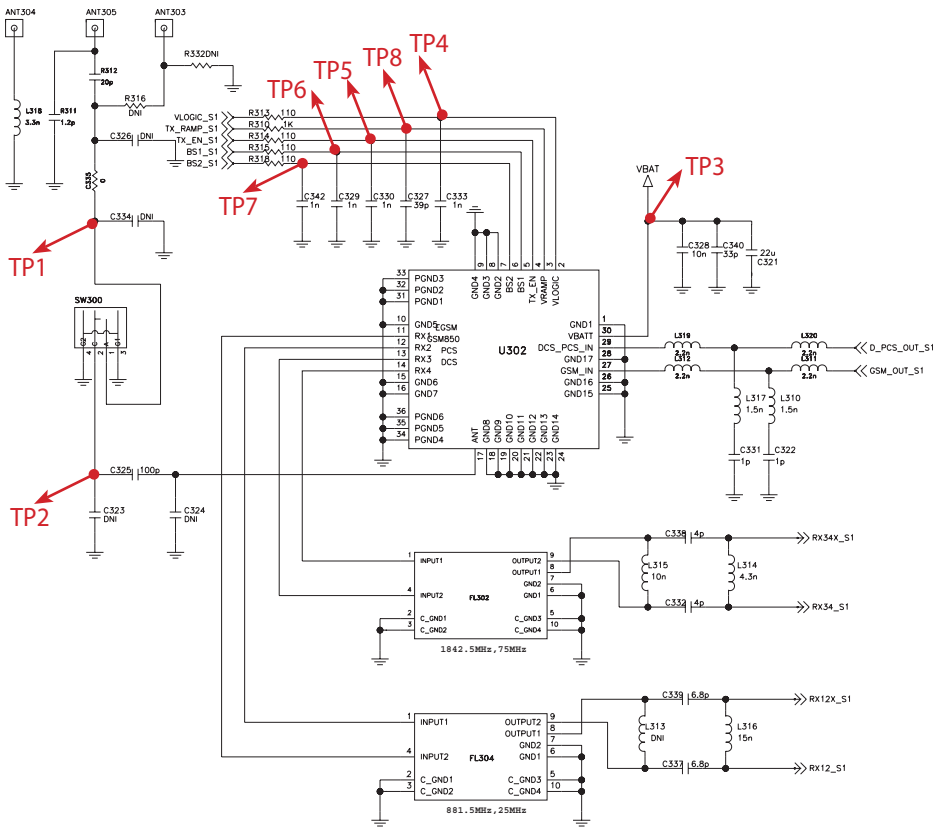


Figure 4.4.8 SIM1 Mobile SW & TX Module circuit

CONTROL LOGIC

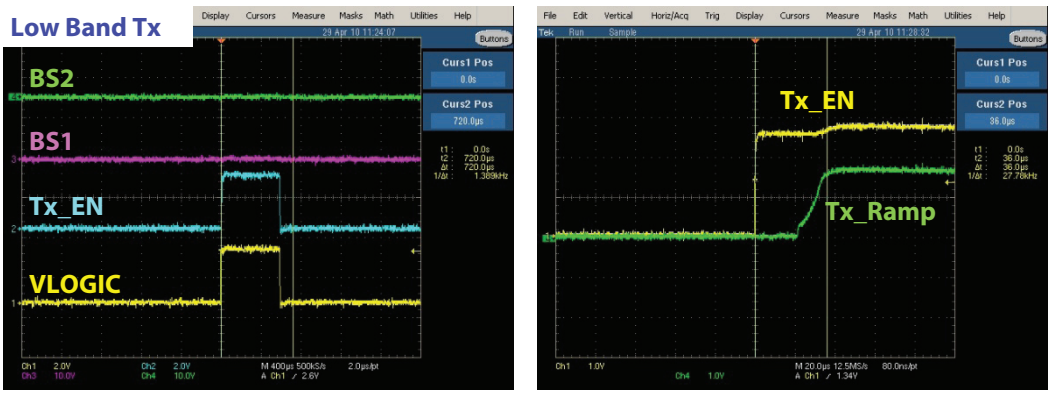


Figure 4.4.9 SIM1 TP4 ~ TP8 scope waveform

CIRCUIT **SIM 2**

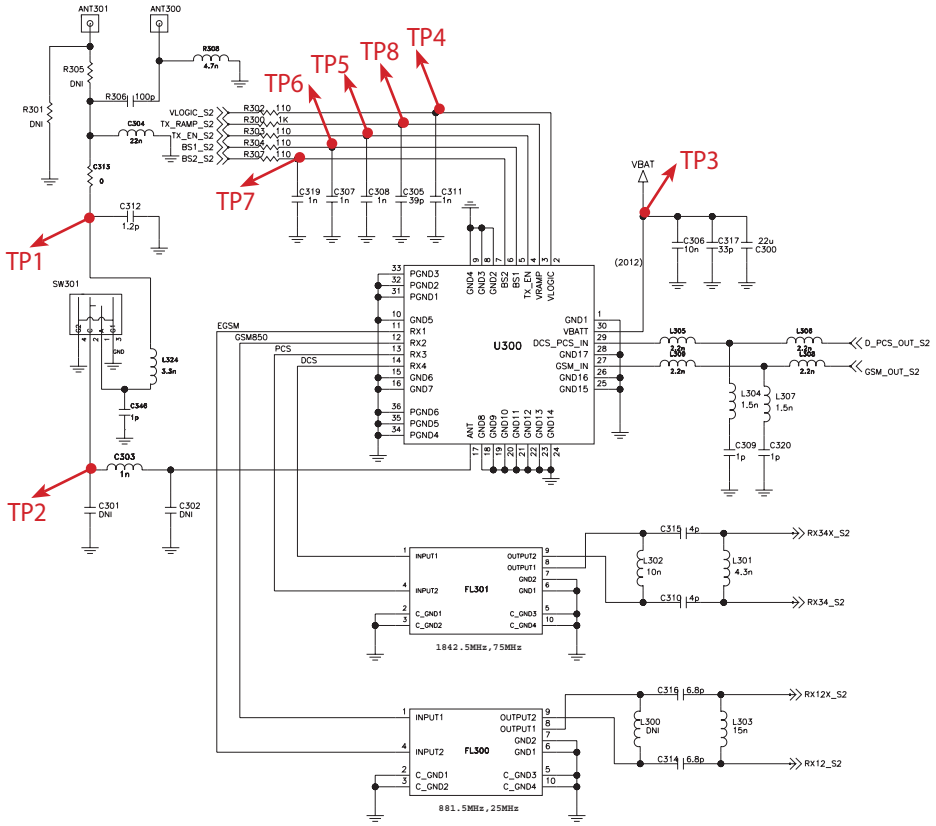


Figure 4.4.10 SIM2 Mobile SW & TX Module circuit

CONTROL LOGIC

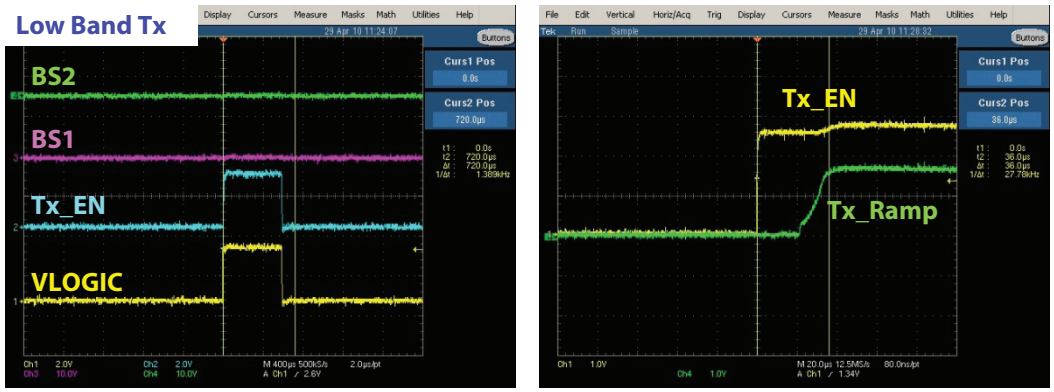
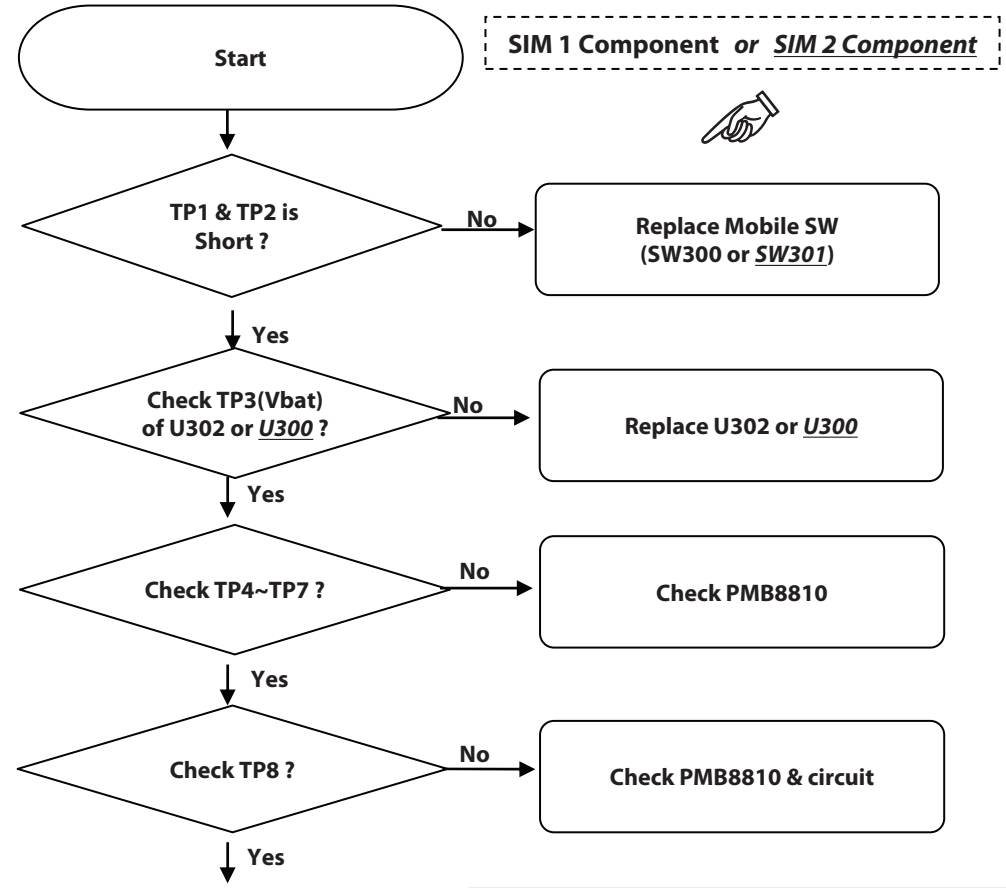


Figure 4.4.11 SIM2 TP4 ~ TP8 scope waveform

CHECKING FLOW



Low Band Tx

	TP4	TP5	TP6	TP7
MODE	VLOGIC	TX_EN	BS1	BS2
STANDBY	LOW	X	X	X
EGSM_RX	HIGH	LOW	LOW	LOW
GSM850_RX	HIGH	LOW	LOW	HIGH
PCS_RX	HIGH	LOW	HIGH	HIGH
DCS_RX	HIGH	LOW	HIGH	LOW
LB_TX	HIGH	HIGH	LOW	X
HB_TX	HIGH	HIGH	HIGH	X

4.5 Power On Trouble

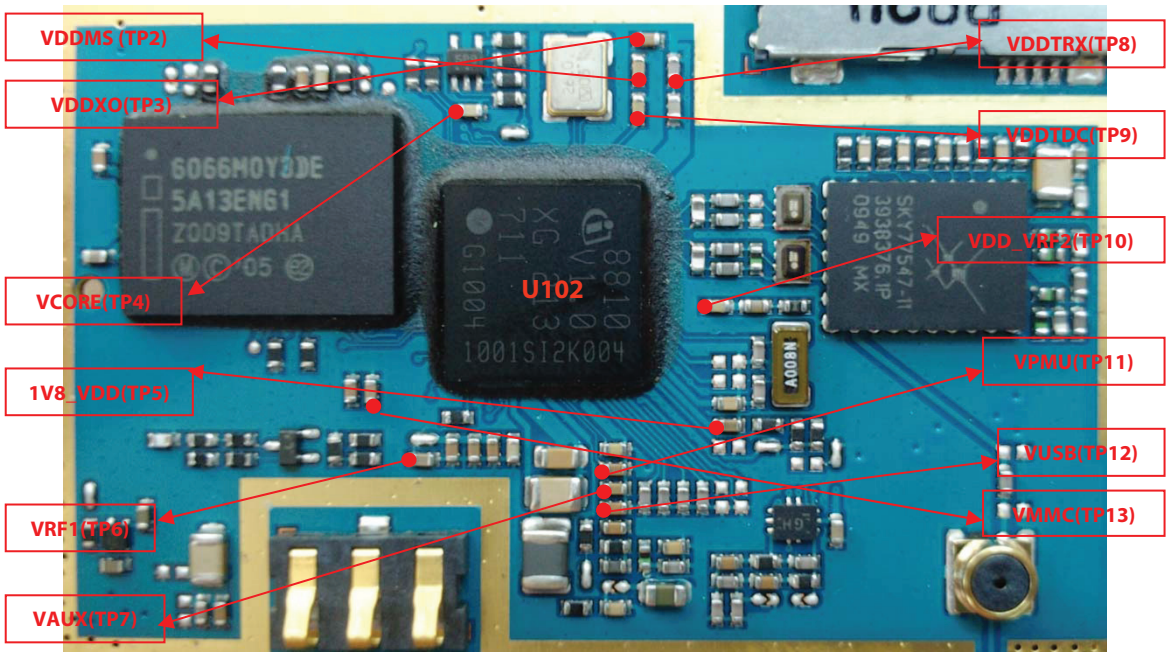


Figure 4.5.1

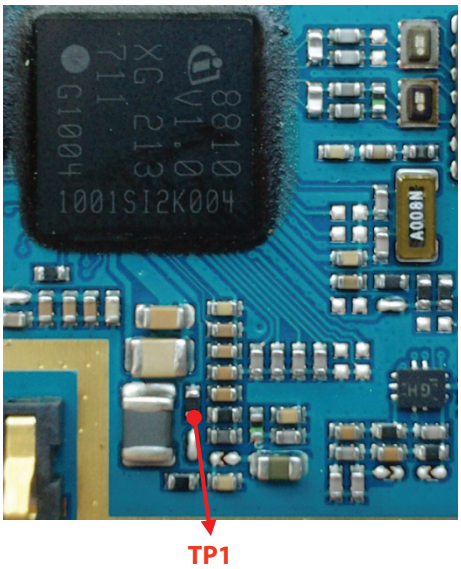


Figure 4.5.2

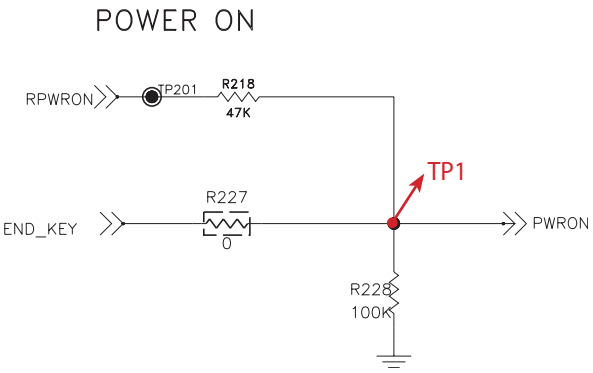


Figure 4.5.3 Remote power on

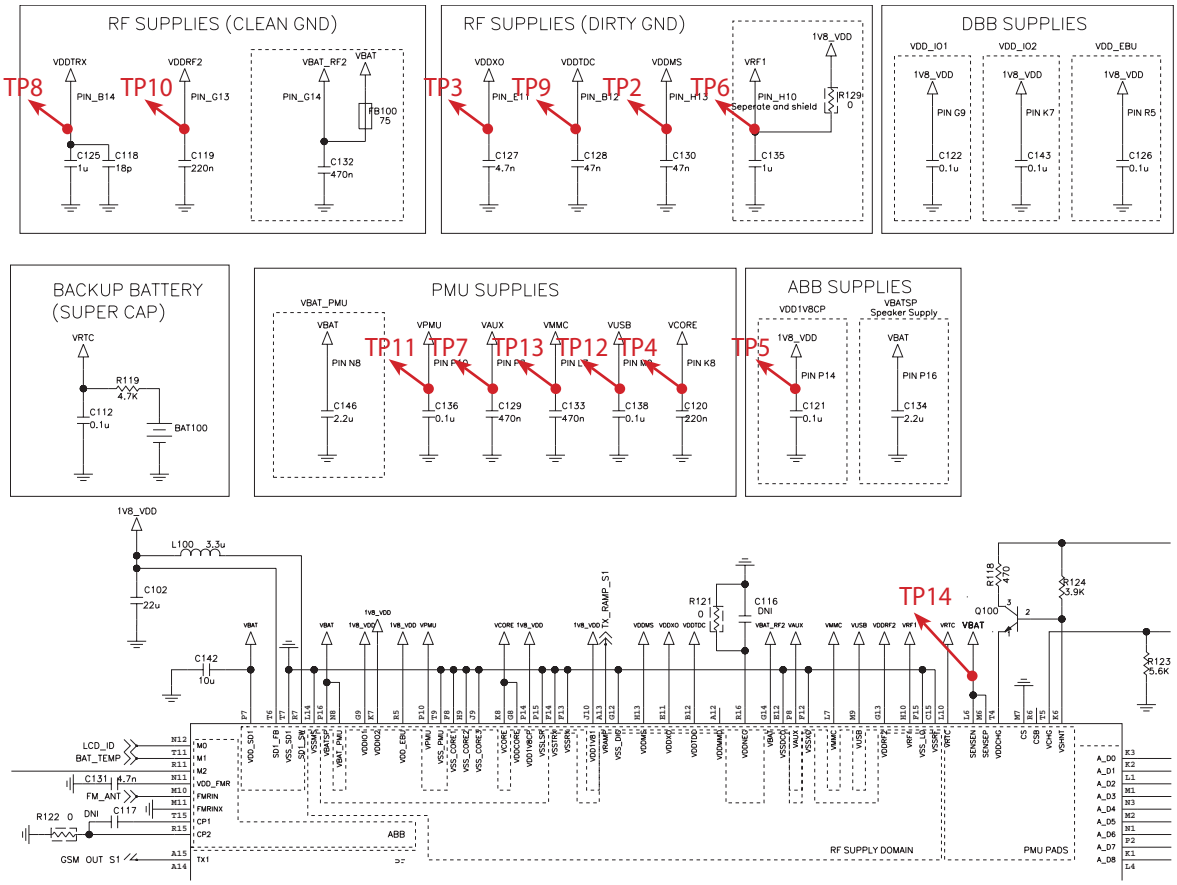
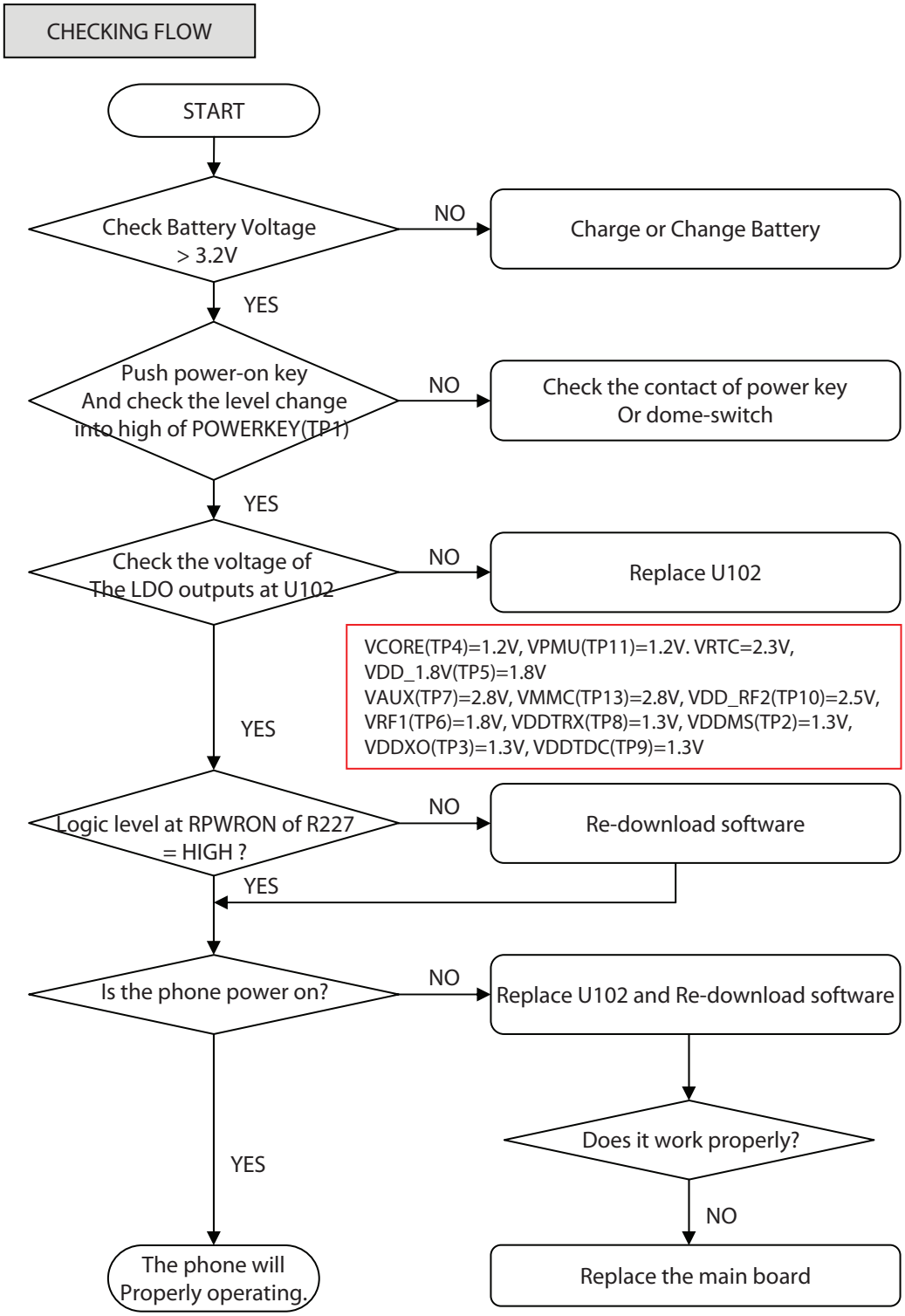


Figure 4.5.4 power block of GX300



4.6 Charging Trouble

TEST POINT

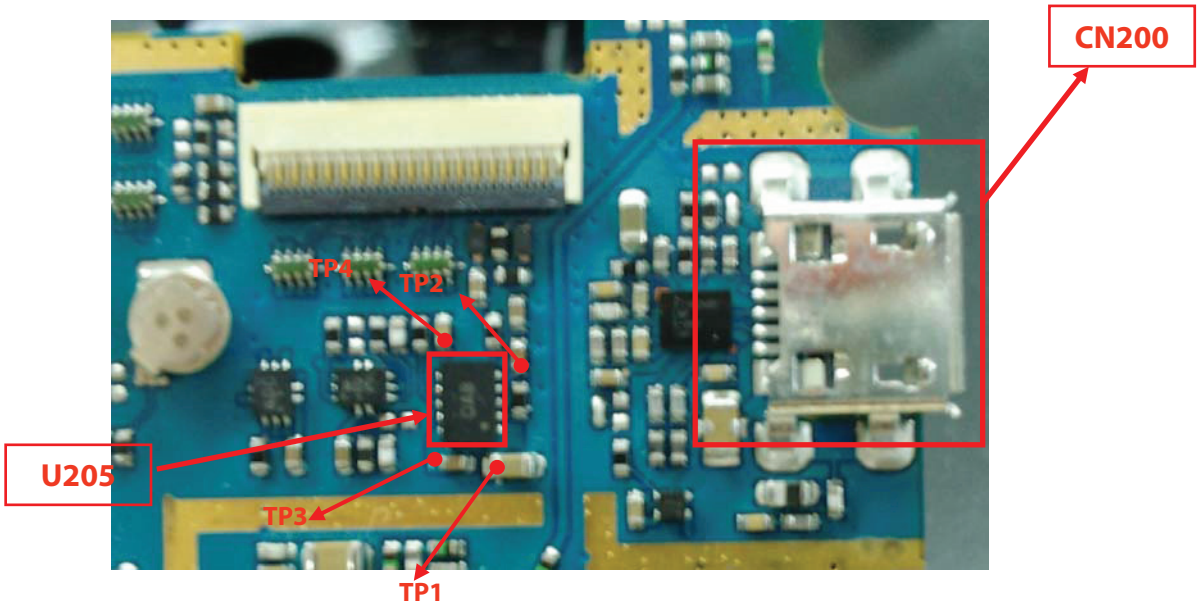


Figure 4.6.1

CIRCUIT

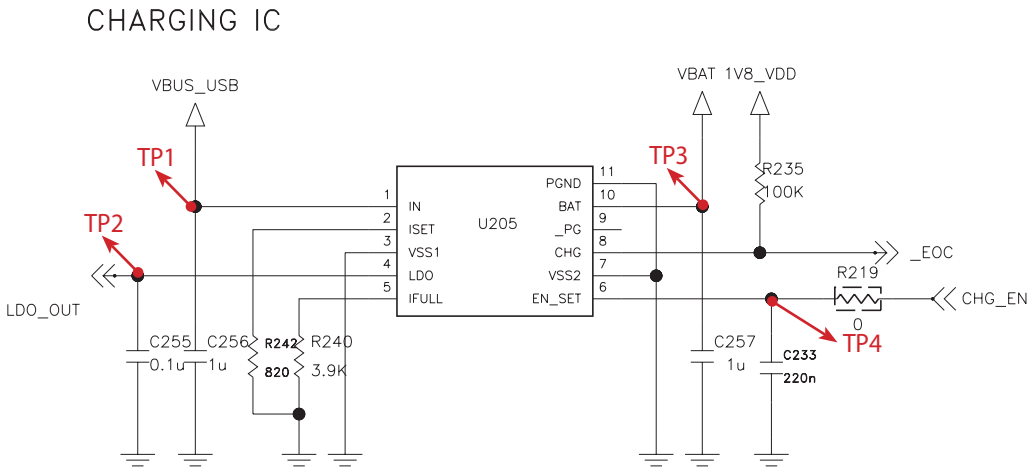
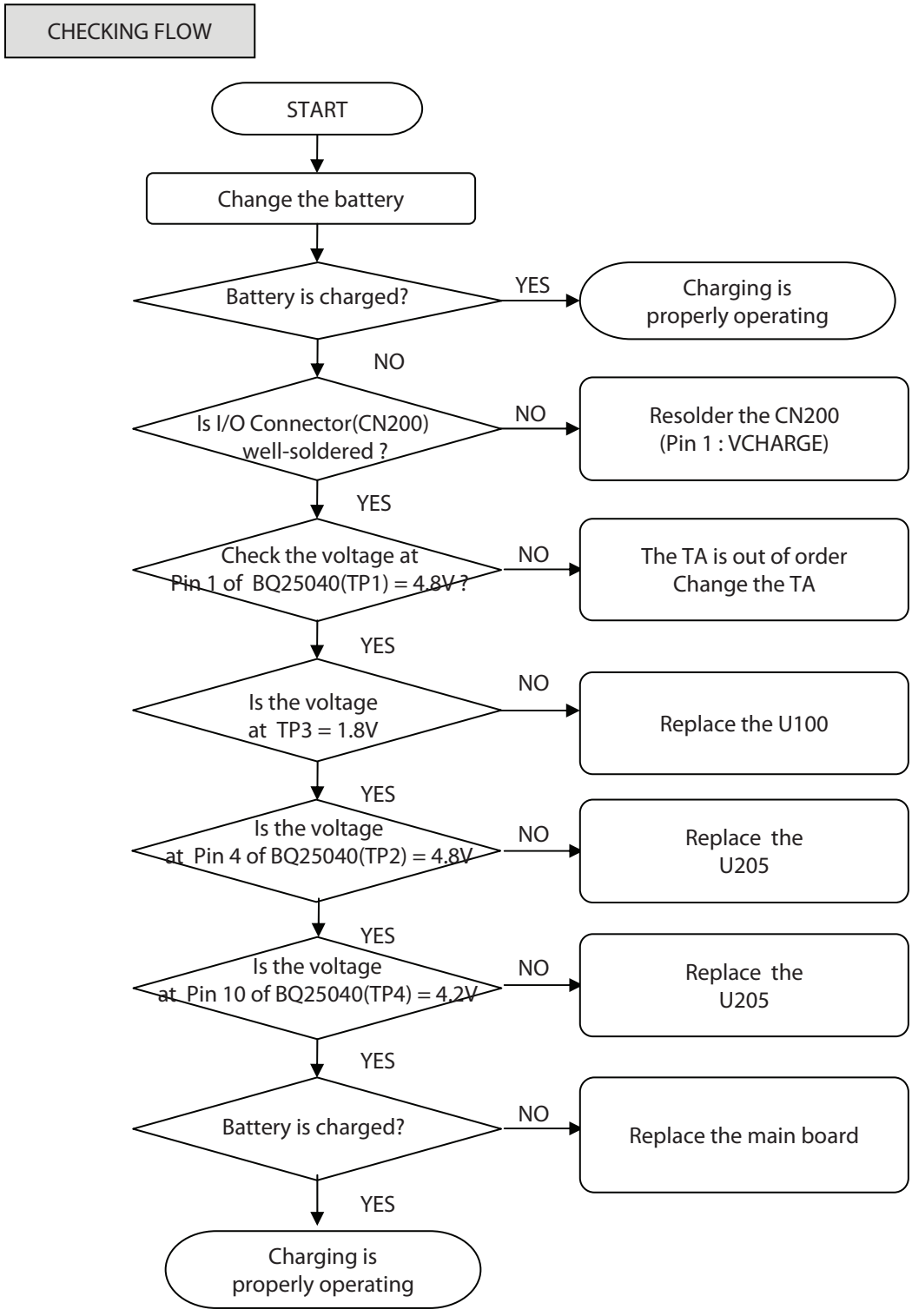
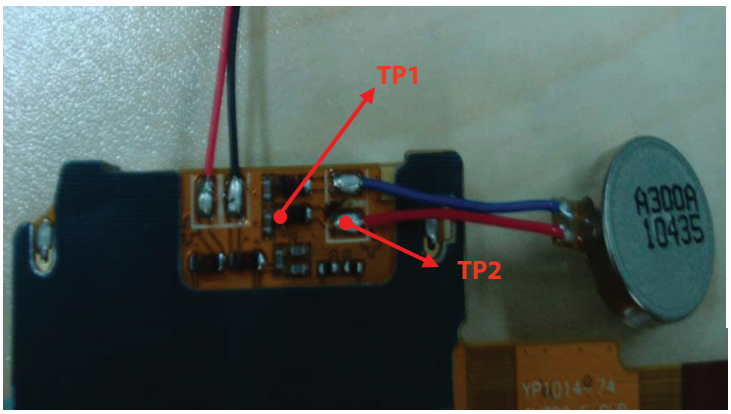


Figure 4.6.2



4.7 Vibrator Trouble

TEST POINT



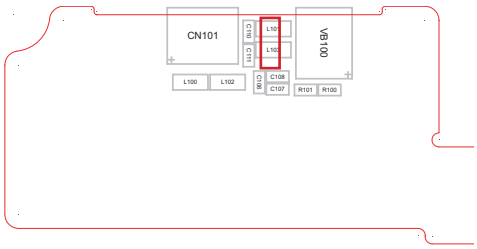
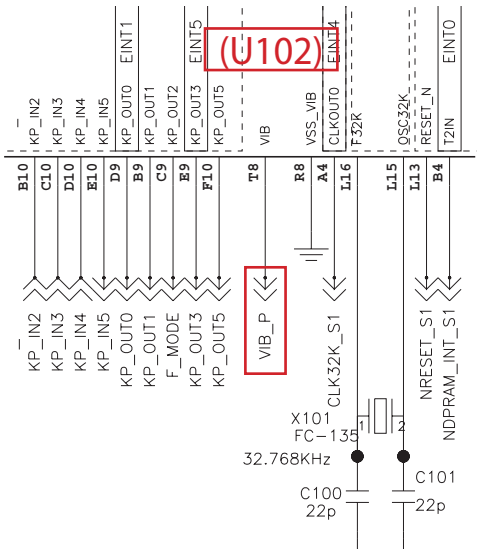


Figure 4.7.1

CIRCUIT



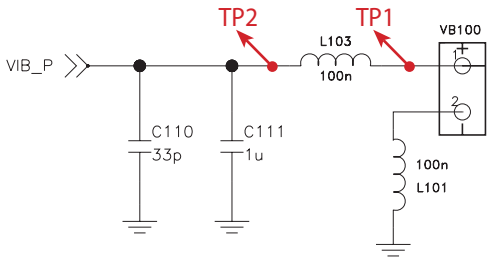
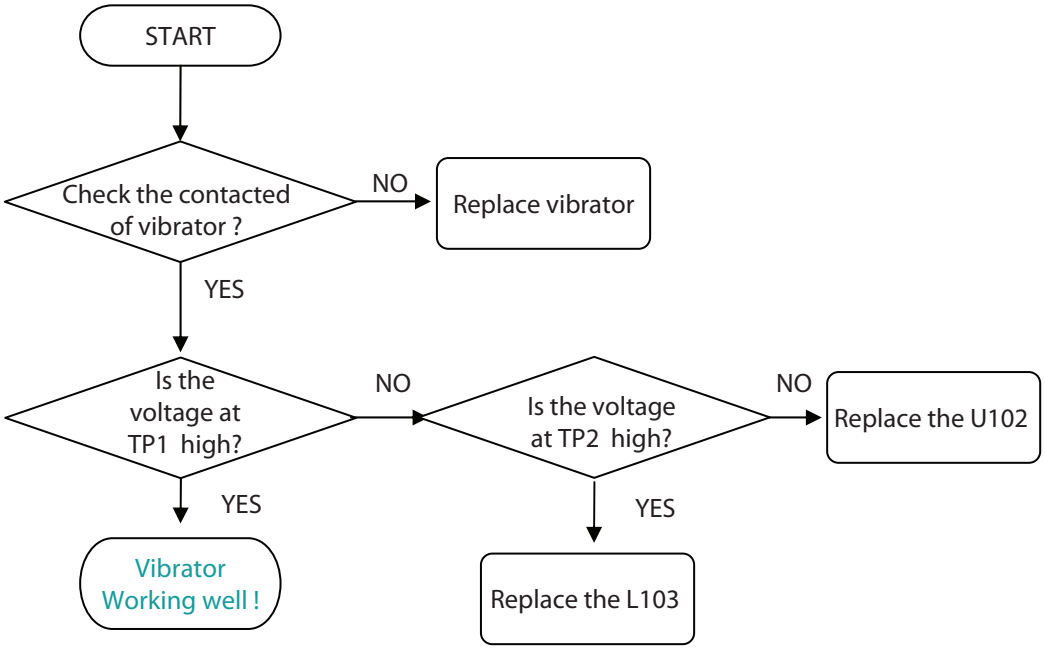


Figure 4.7.2

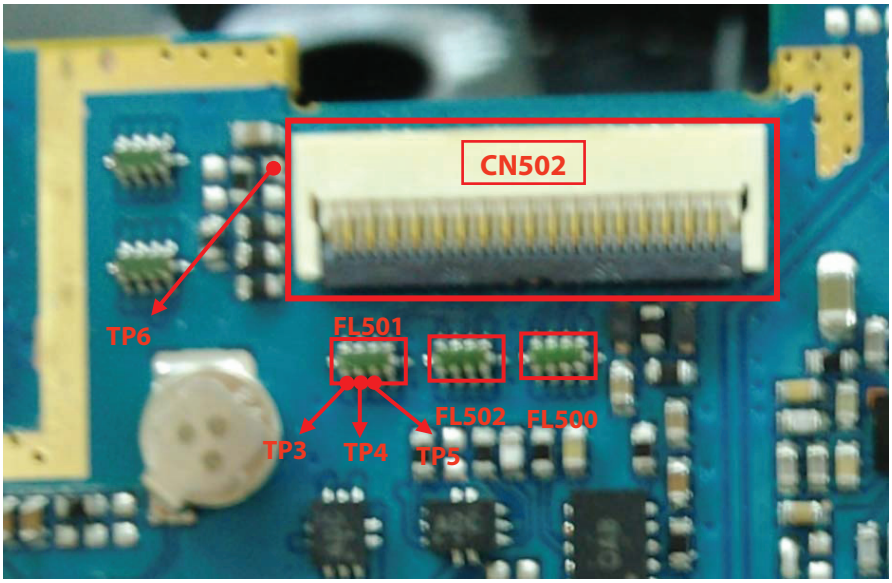
CHECKING FLOW

SETTING : Enter the engineering mode, and set vibrator on at vibration of BB test menu



4.8 LCD Trouble

TEST POINT



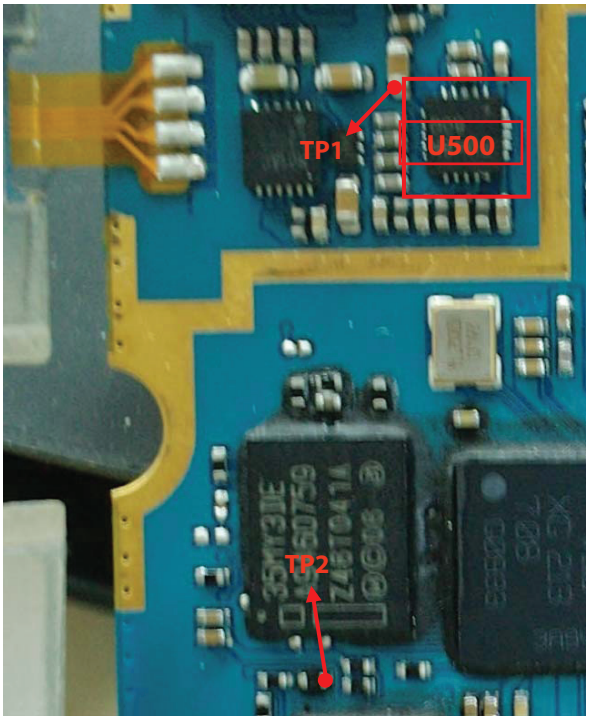


Figure 4.8.1

CIRCUIT

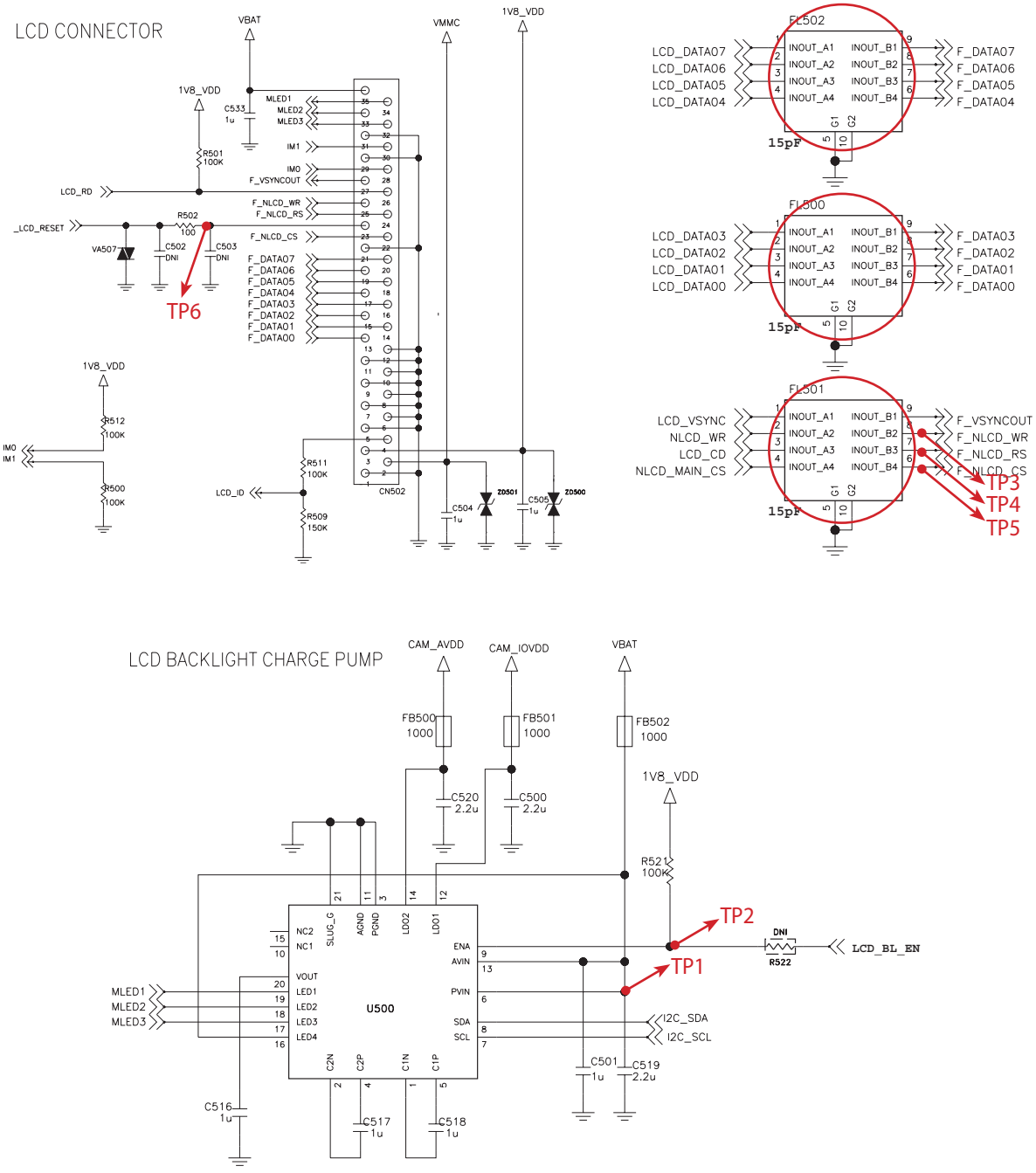
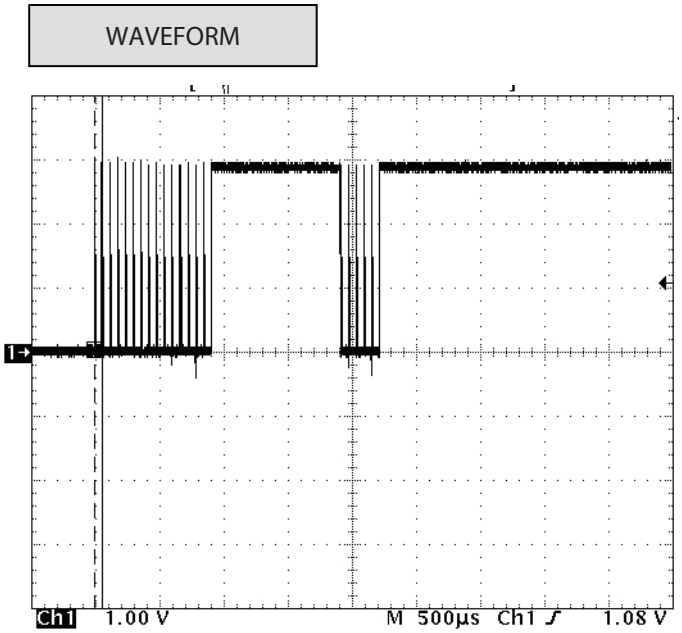
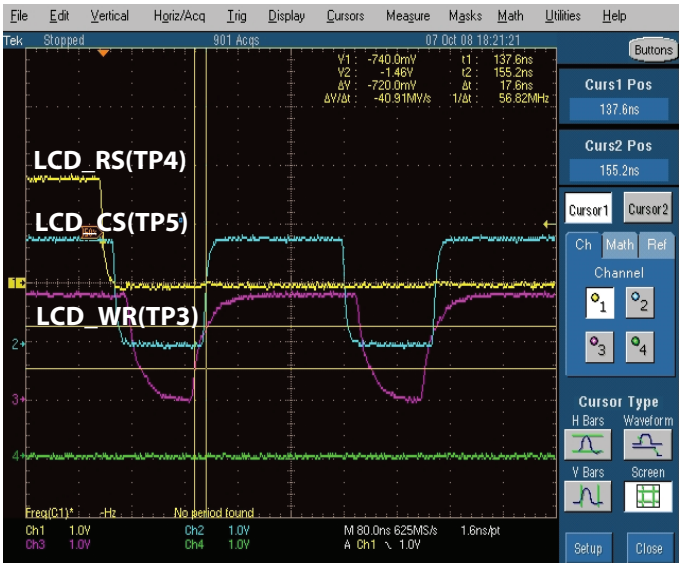


Figure 4.8.2

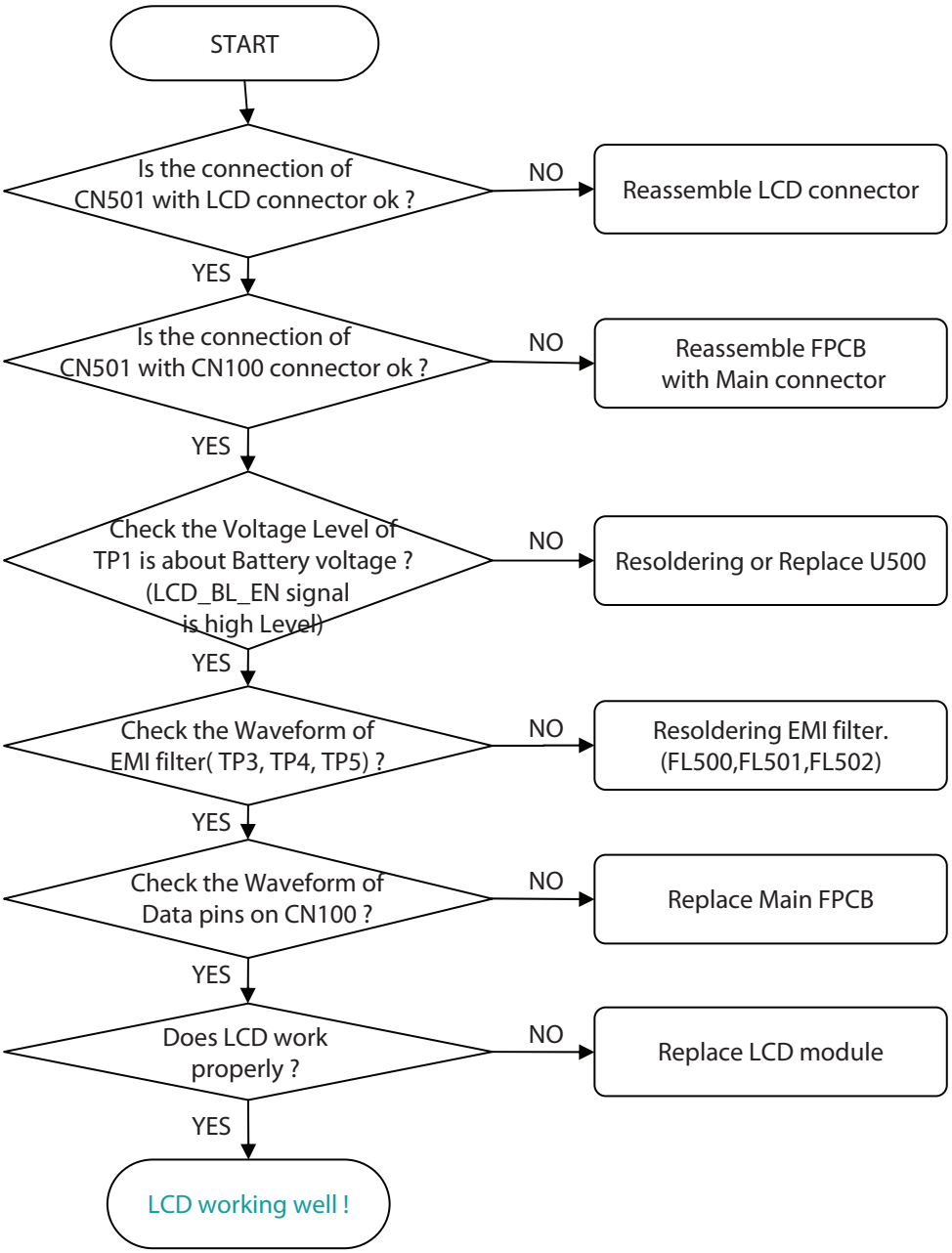


Graph 4.8.1. LCD Backlight Control Signal Waveform



Graph 4.8.2. LCD Data Waveform

CHECKING FLOW



4.9 Camera Trouble

TEST POINT

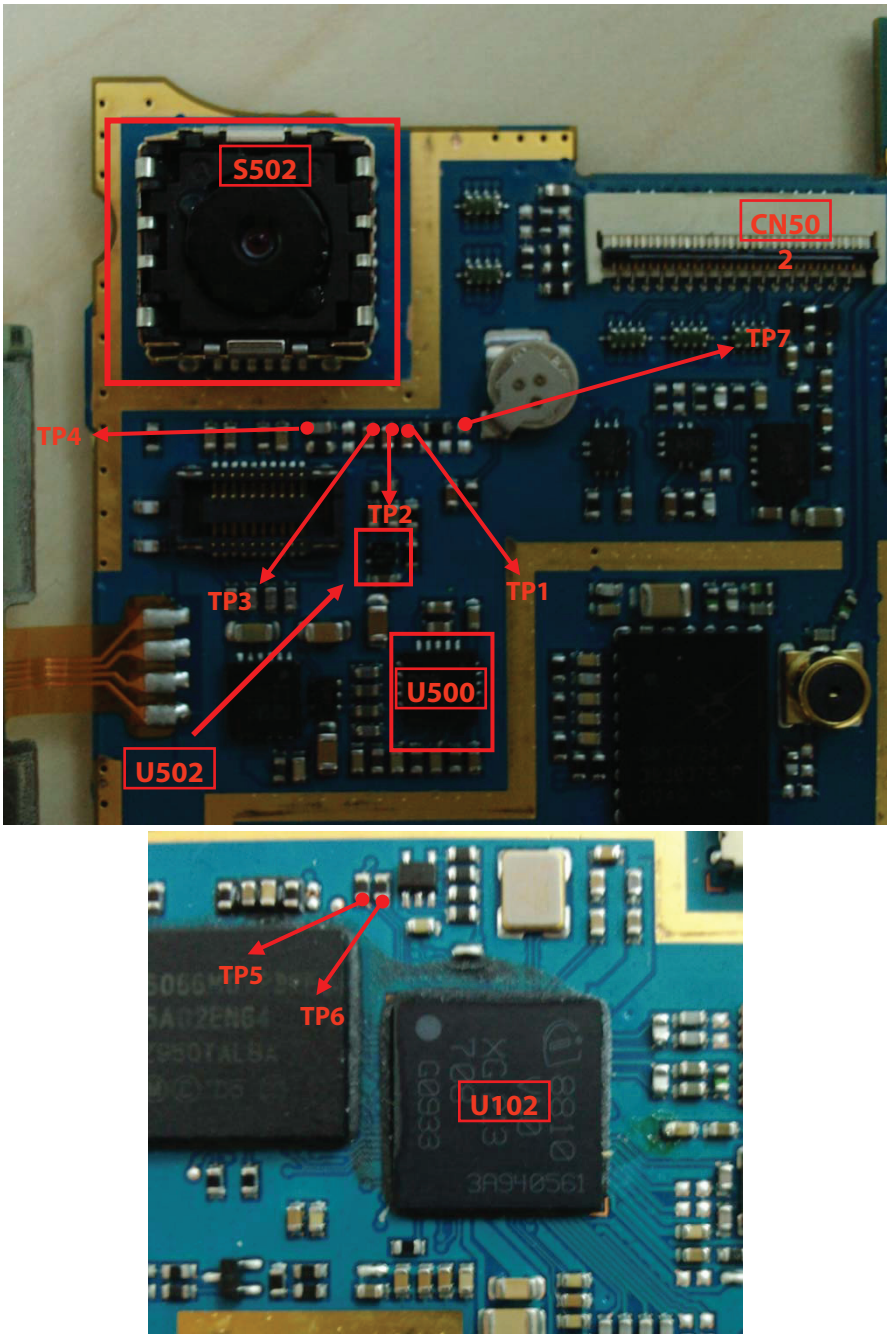


Figure 4.9.1

CIRCUIT

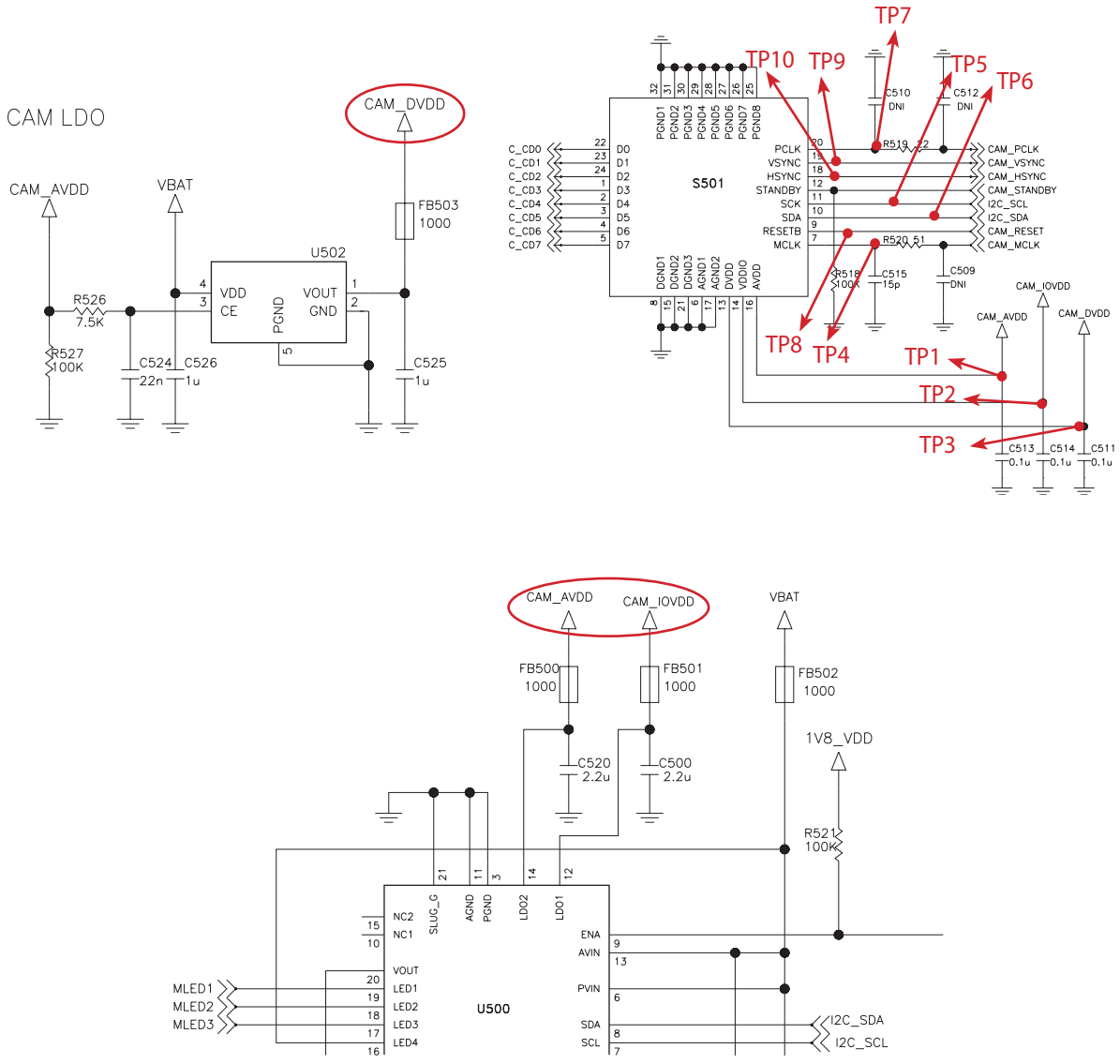
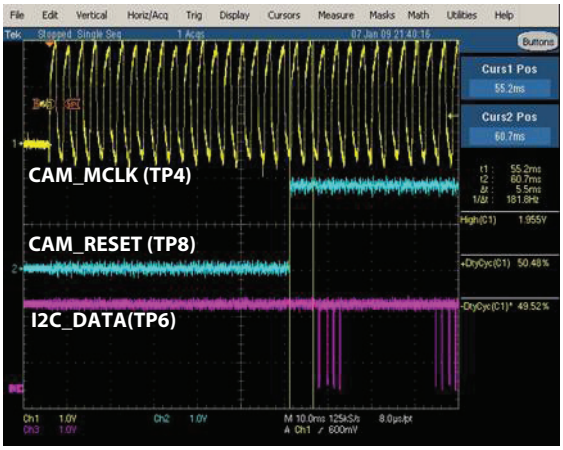
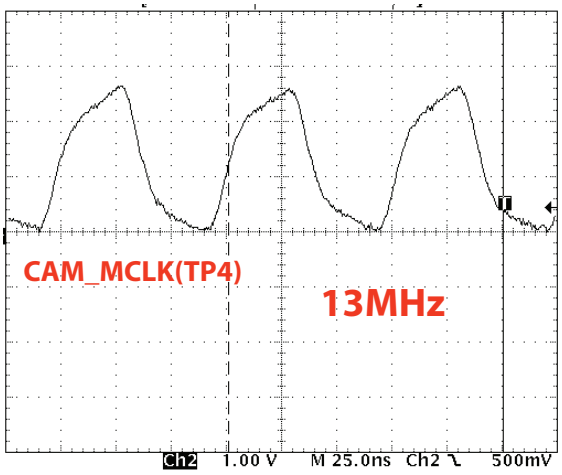


Figure 4.9.2

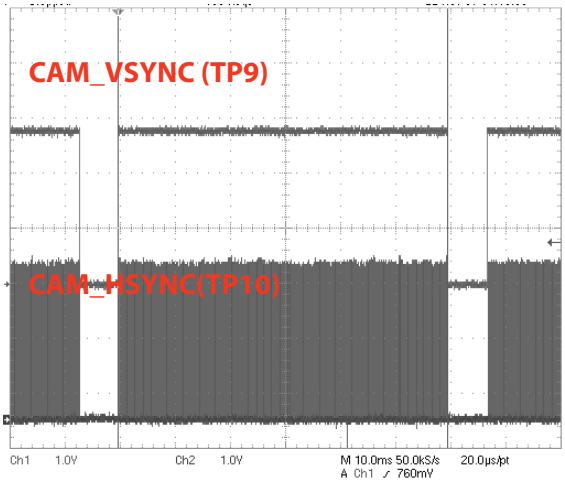
WAVEFORM



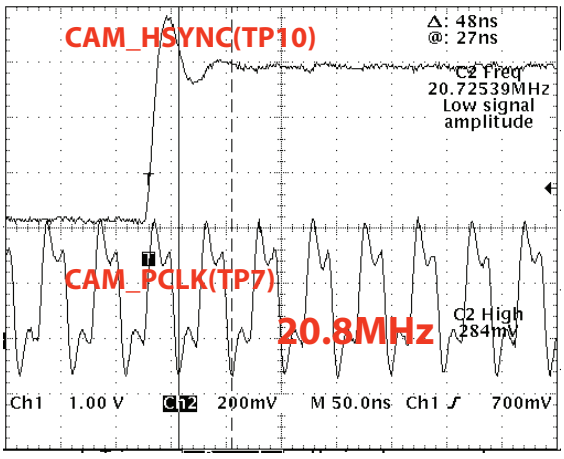
Graph 4.9.1. I2C Data Waveform



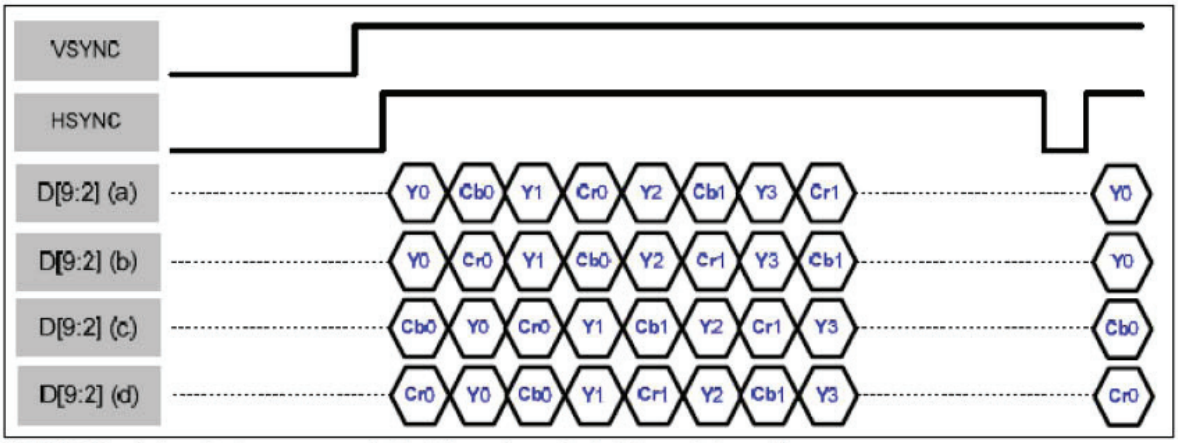
Graph 4.9.2. MCLK Waveform



Graph 4.9.3.CAM_VSYNC vs.
CAM_HSYNC Waveform



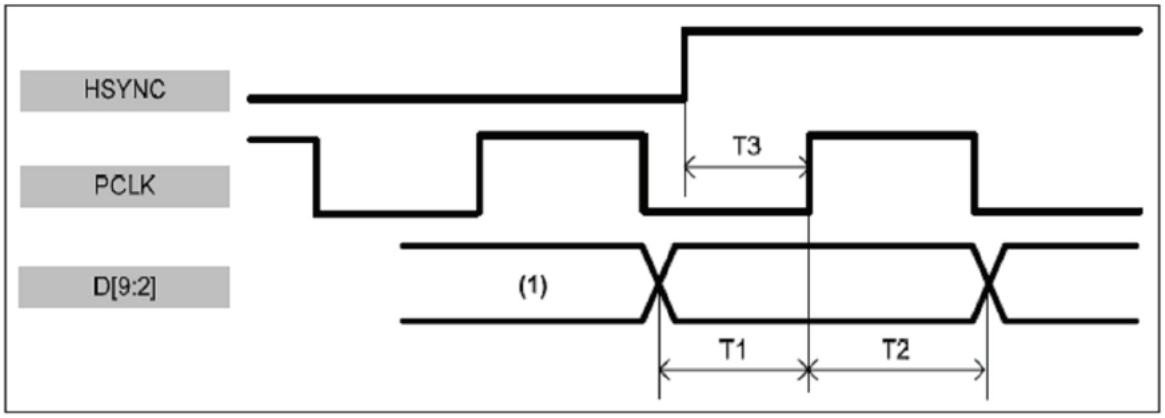
Graph 4.9.4.CAM_HSYNC vs.
CAM_PCLK Waveform



[NOTE] The data output sequence, (a) to (d) can be selected by register setting.

Graph 4.9.5.CAM Output Timing Waveform

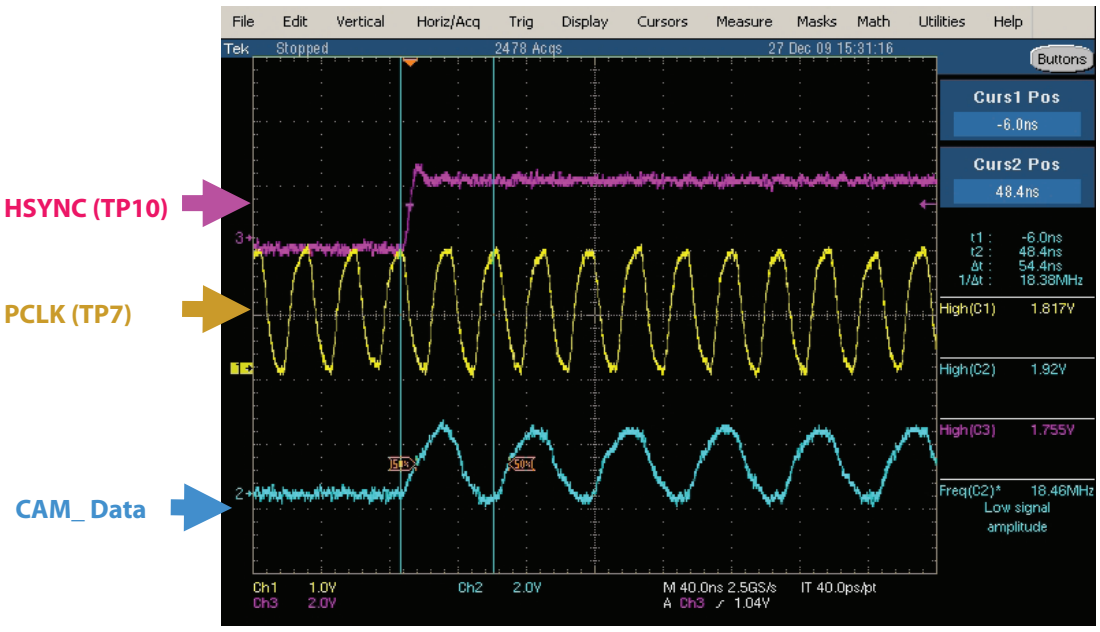
Graph 4.9.6.CAM Output Timing Waveform



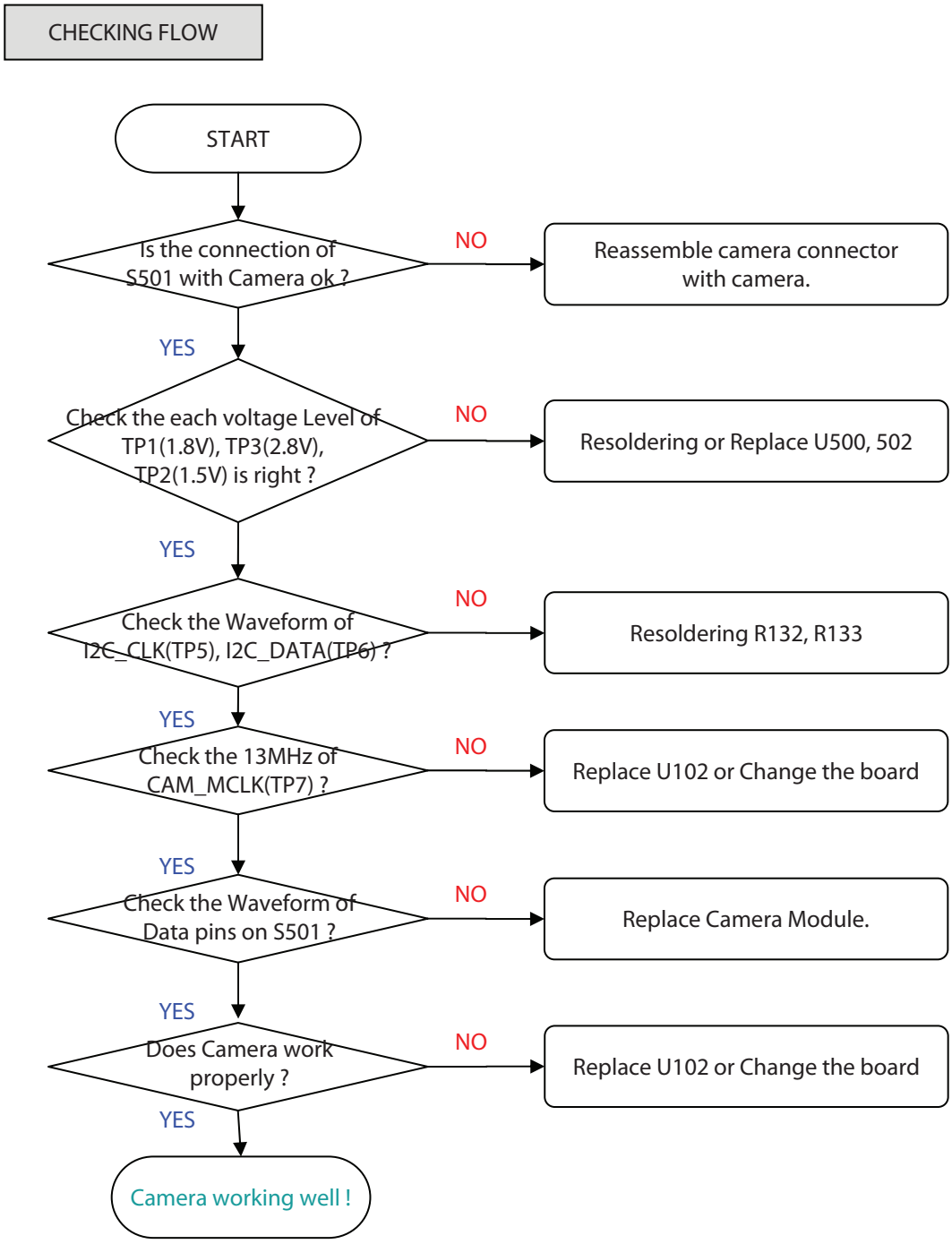
[NOTE] (1): blank & start code, otherwise '0' for ITU-R.656 output format:

SYMBOL	PARAMETER	MIN	MAX	UNIT
T1	Data Setup Time to PCLK	4	-	ns
T2	Data Hold Time to PCLK	4	-	ns
T3	HSYNC↑ to PCLK↑ delay	4	-	ns

Graph 4.9.7. Output Data and Pixel Clock Timing



Graph 4.9.8. Output Data and Pixel Clock Timing



4.10 Speaker Trouble

TEST POINT

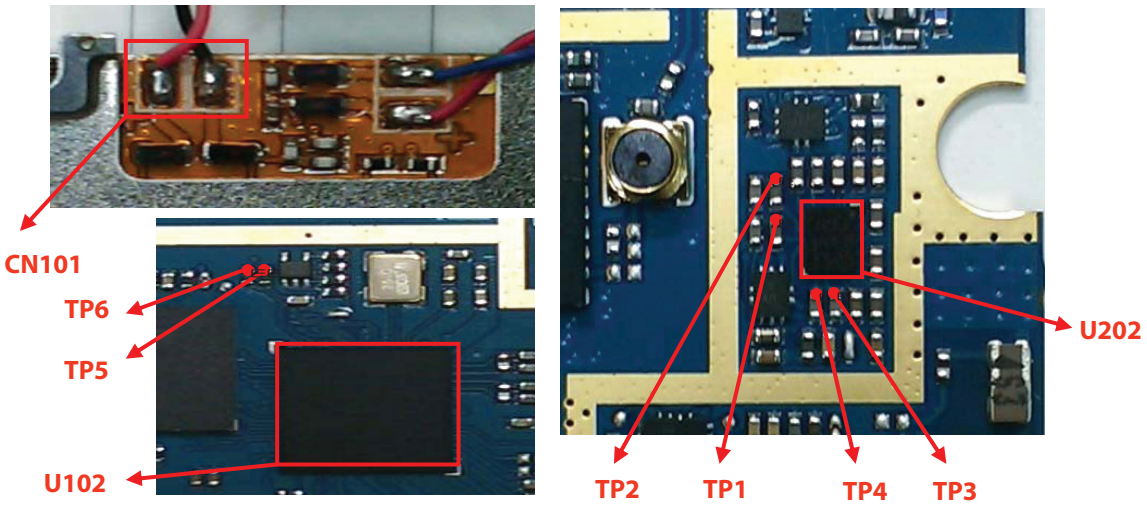


Figure 4.10.1

CIRCUIT

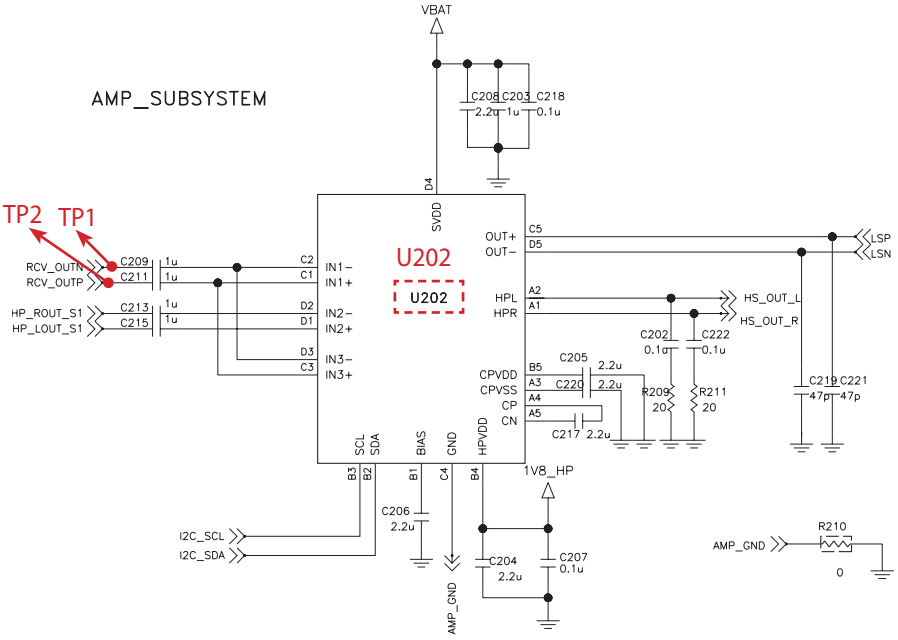


Figure 4.10.2

4.10 Speaker Trouble

CIRCUIT

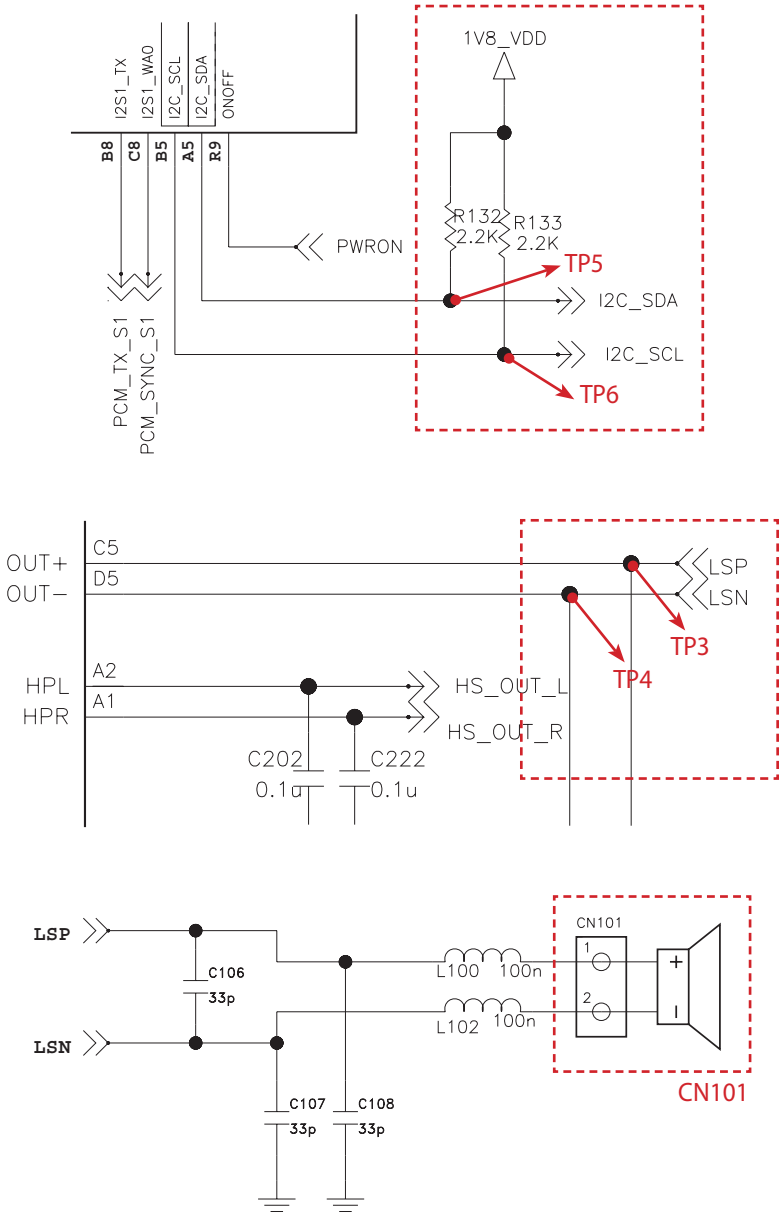
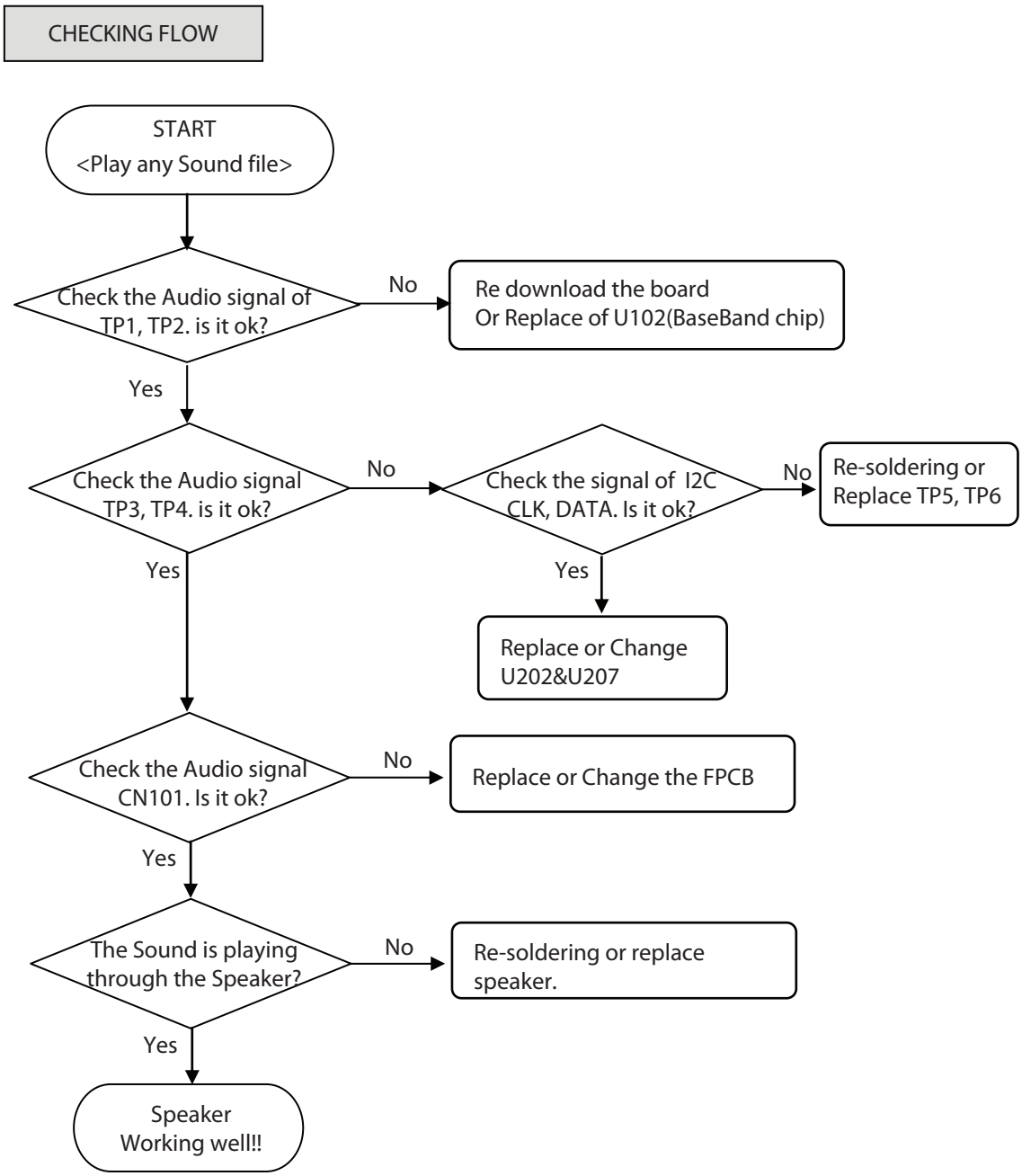


Figure 4.10.3



4.11 Earphone Trouble

TEST POINT

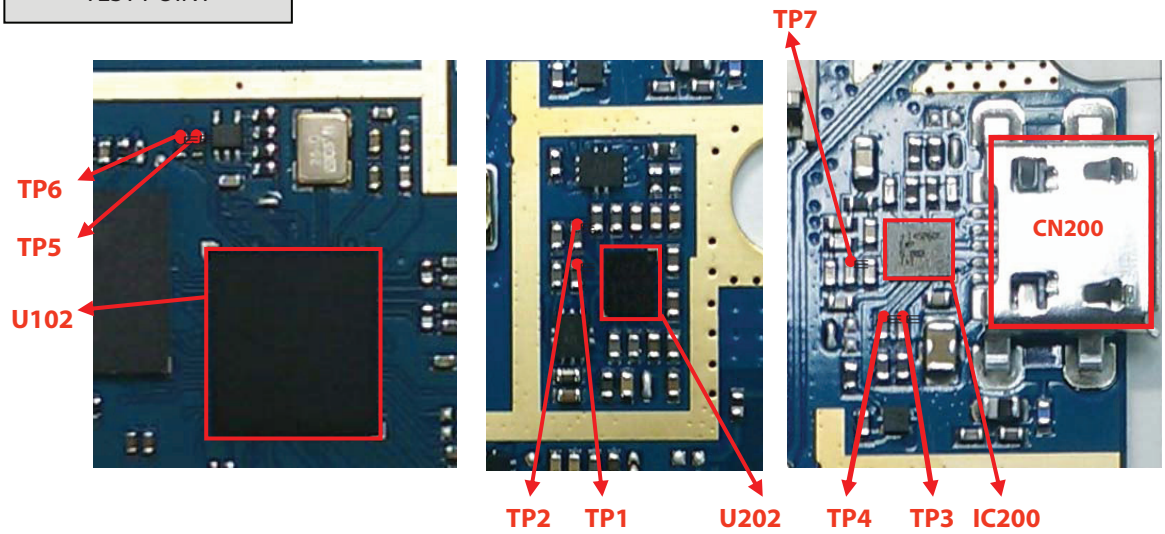


Figure 4.11.1

CIRCUIT

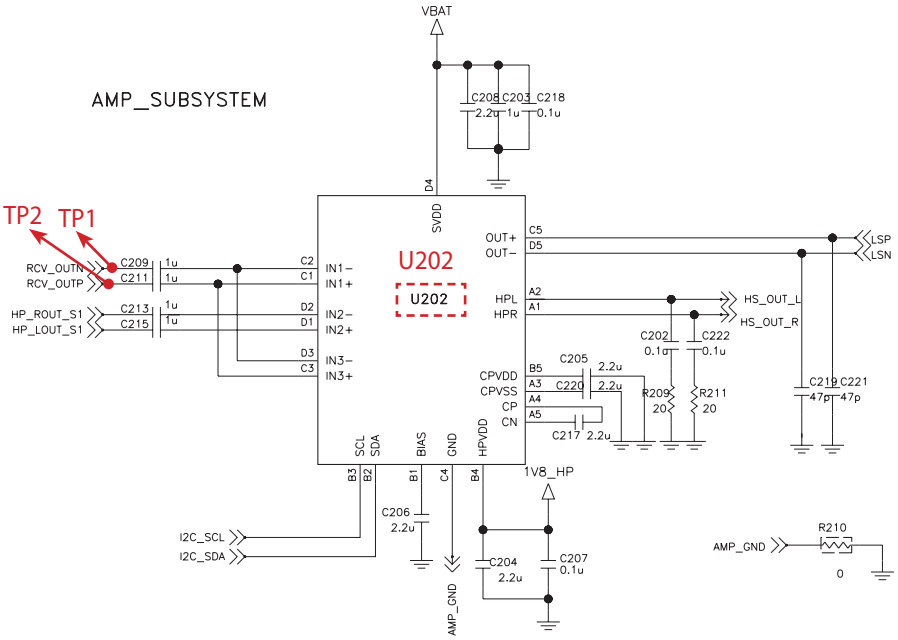


Figure 4.11.2

CIRCUIT

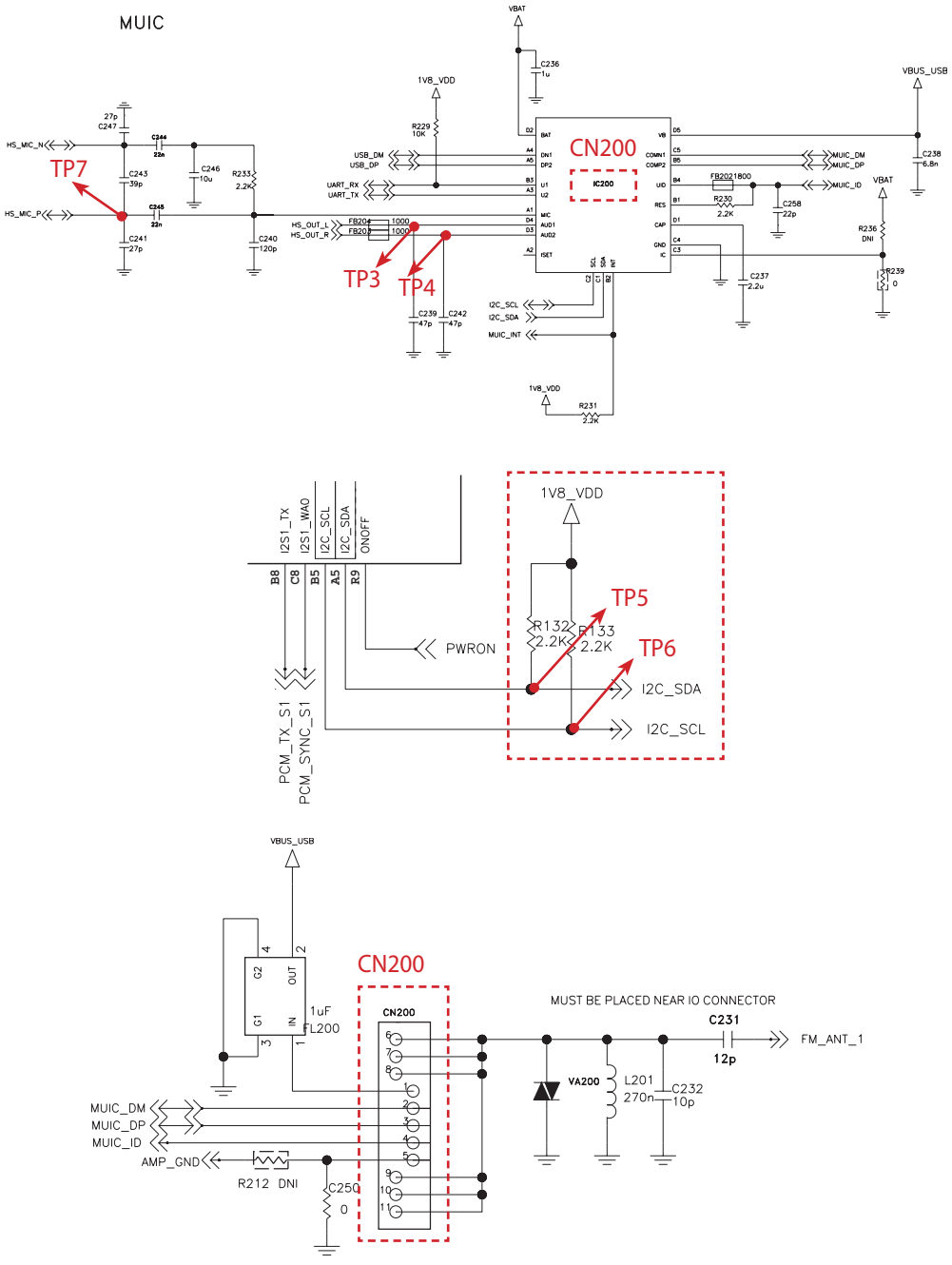
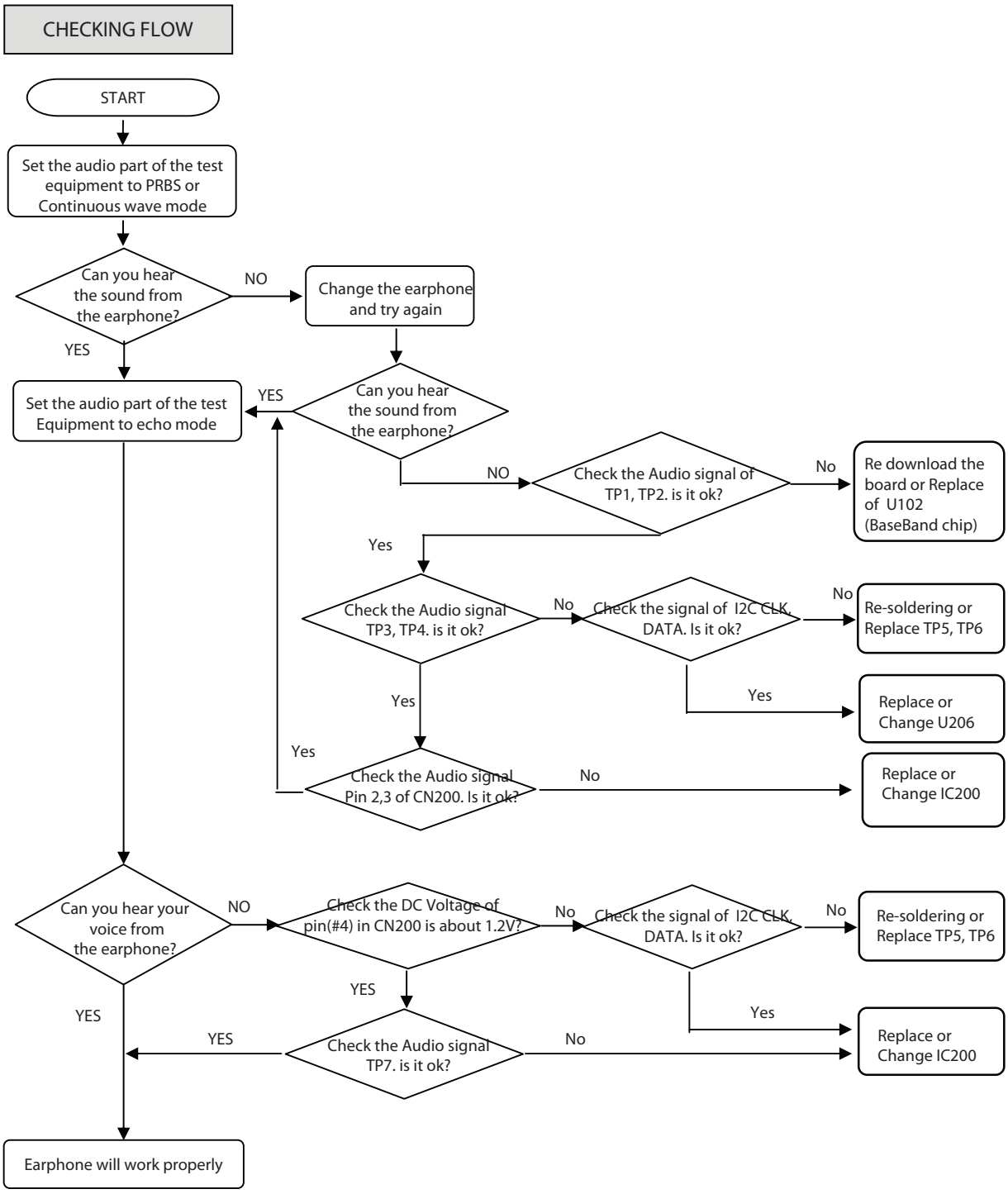


Figure 4.11.3



4.12 Receiver Trouble

TEST POINT

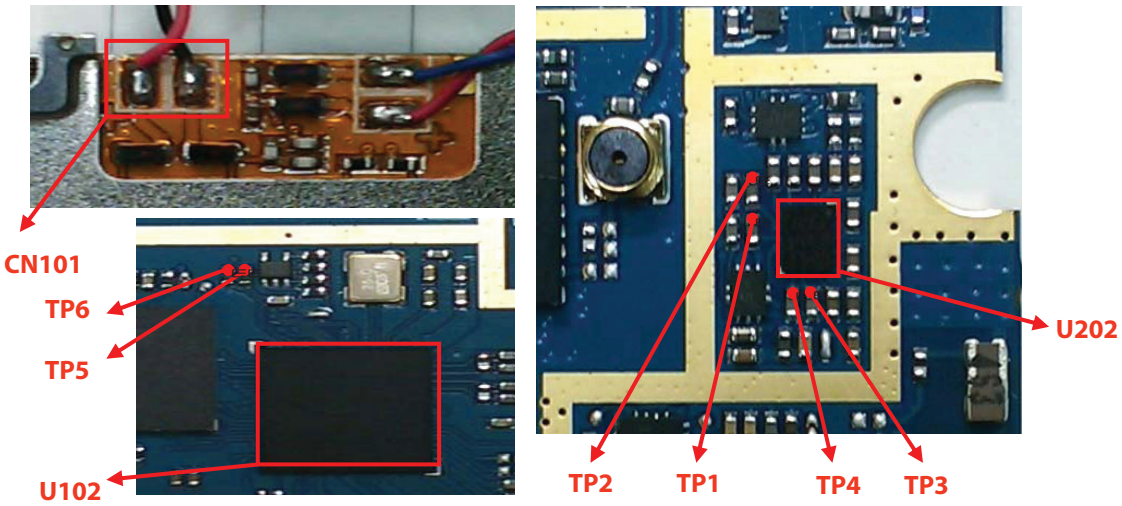


Figure 4.12.1

CIRCUIT

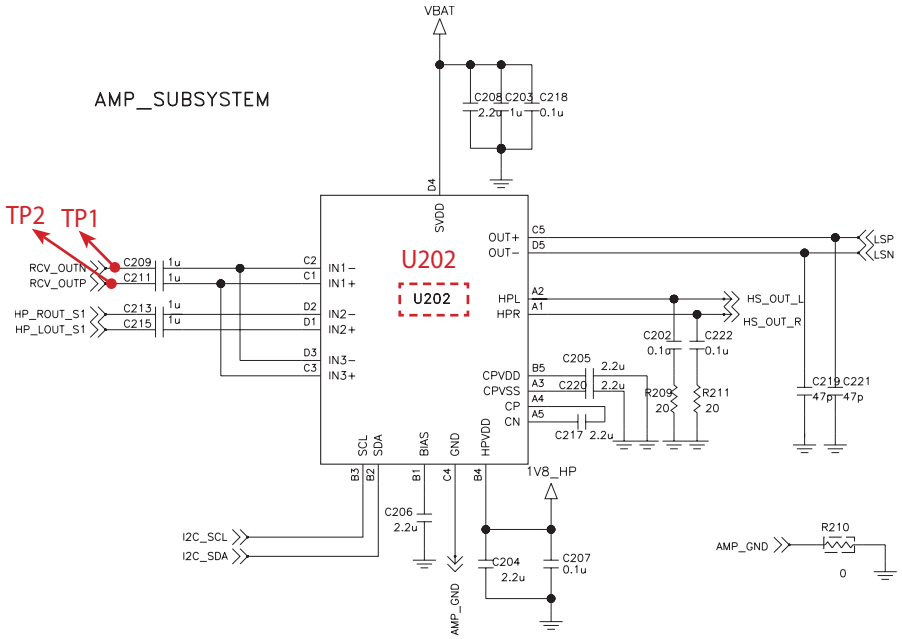


Figure 4.12.2

CIRCUIT

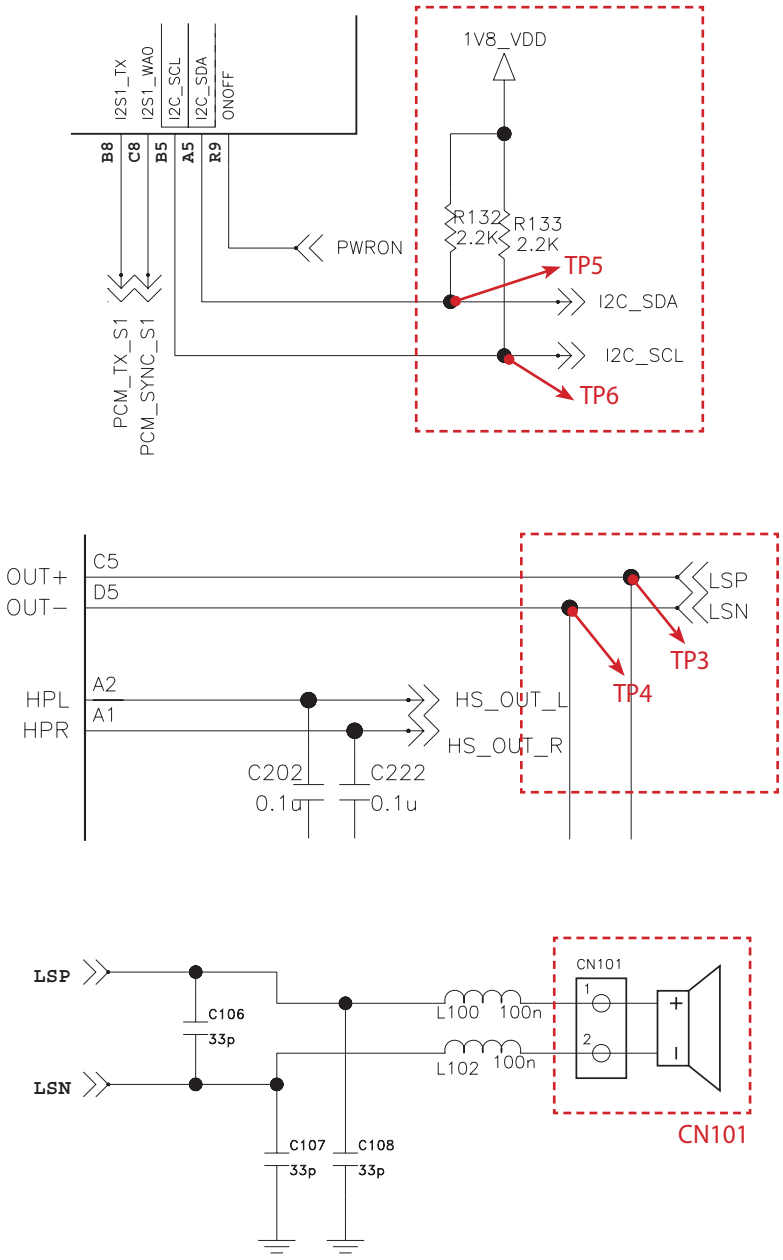
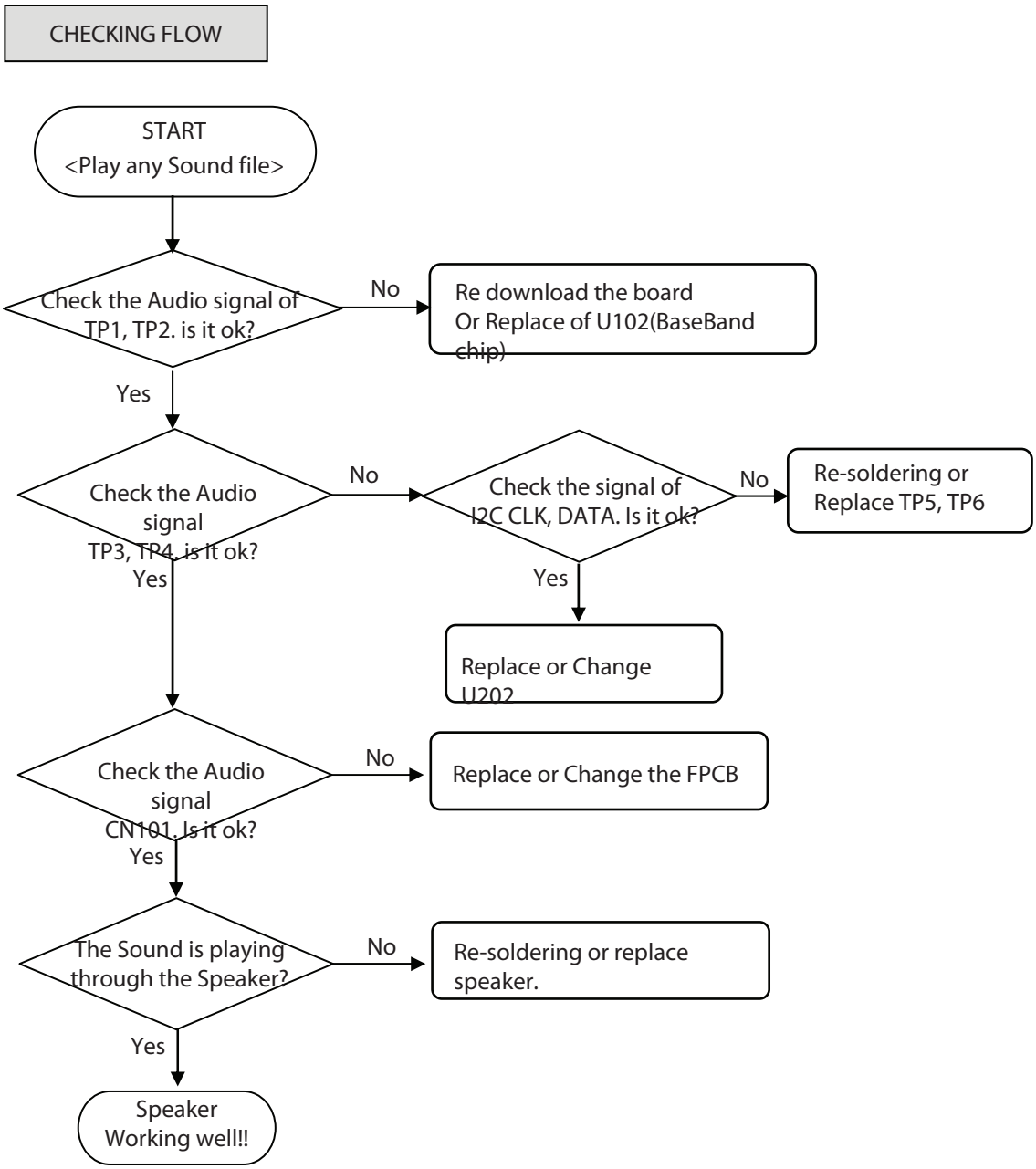


Figure 4.12.3



4.13 Microphone Trouble

TEST POINT

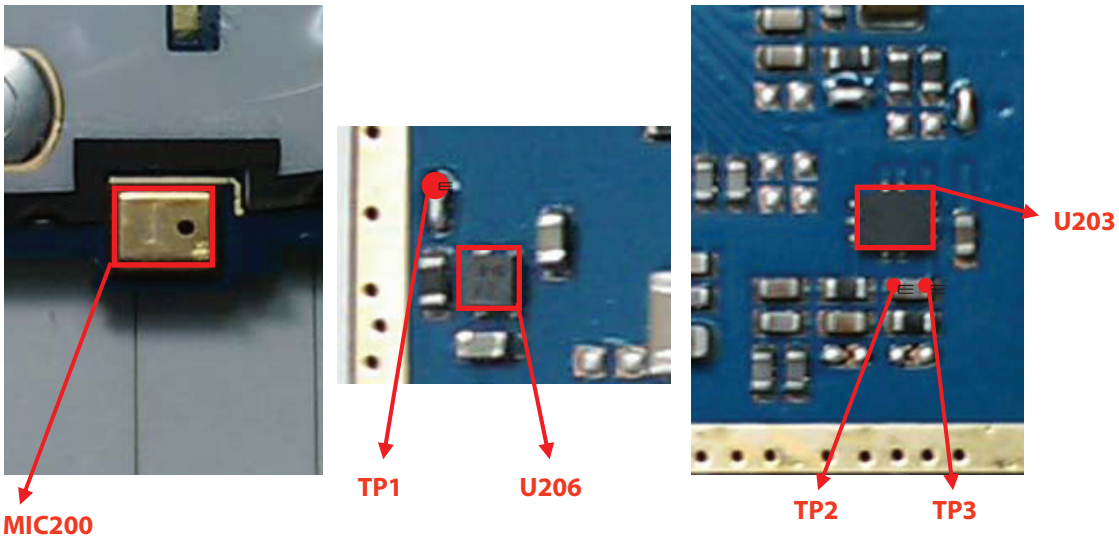


Figure 4.13.1

CIRCUIT

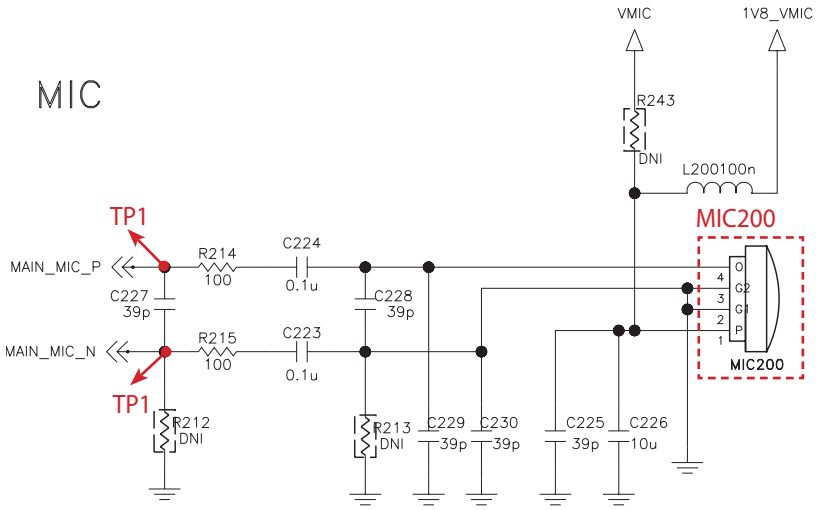
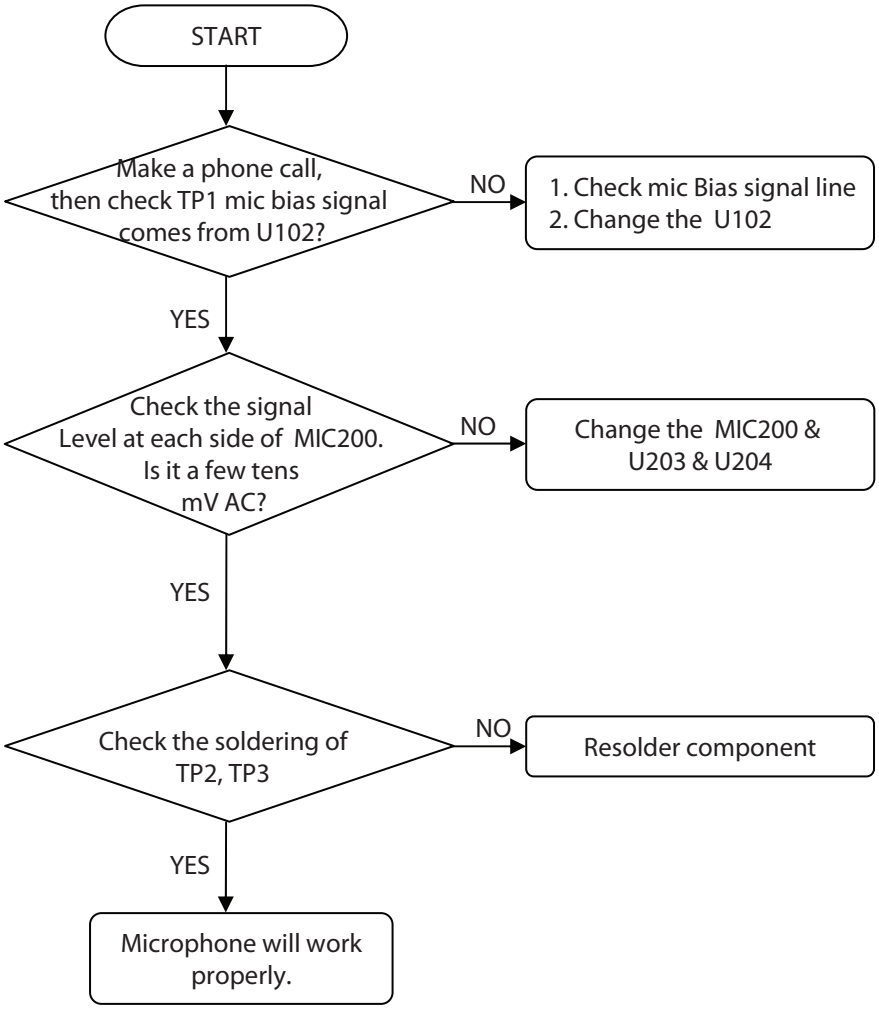


Figure 4.13.2

CHECKING FLOW

SETTING : After initialize Agilent 8960, Test EGSM900, DCS mode (or PCS mode)



4.14 SIM Card Interface Trouble

TEST POINT

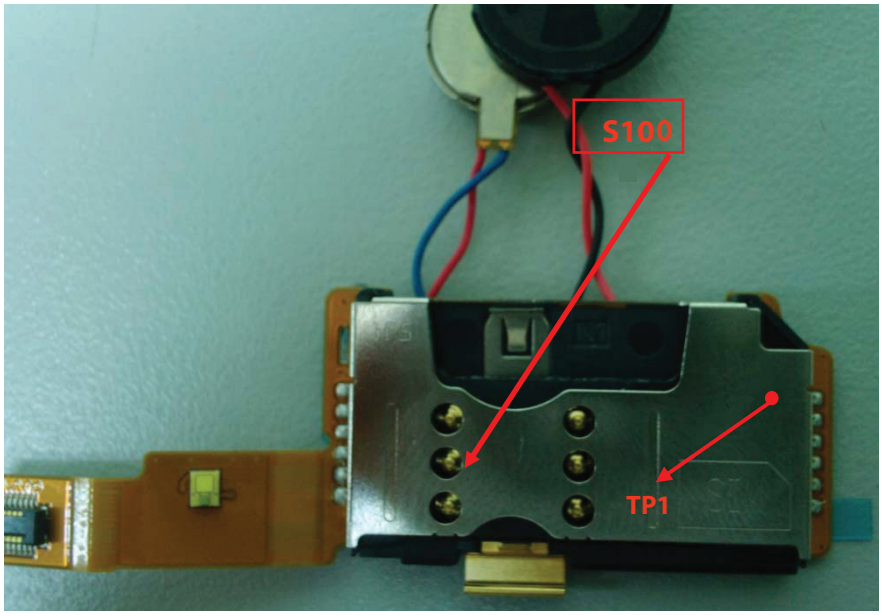


Figure 4.14.1

CIRCUIT

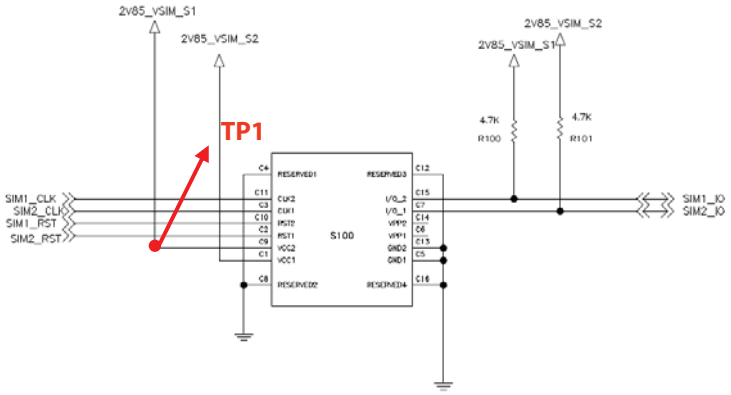
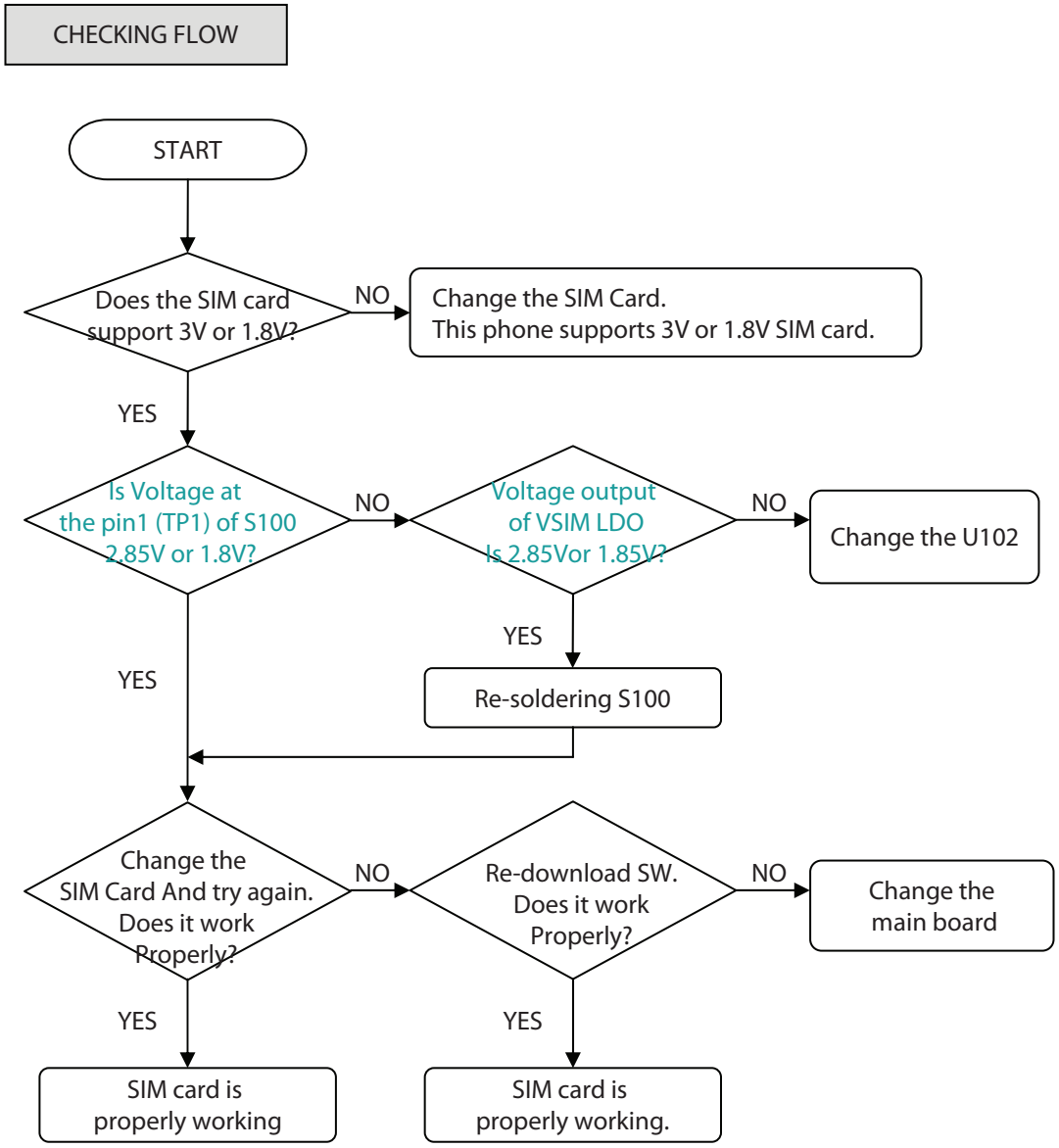


Figure 4.14.2



4.15 KEY backlight Trouble

TEST POINT

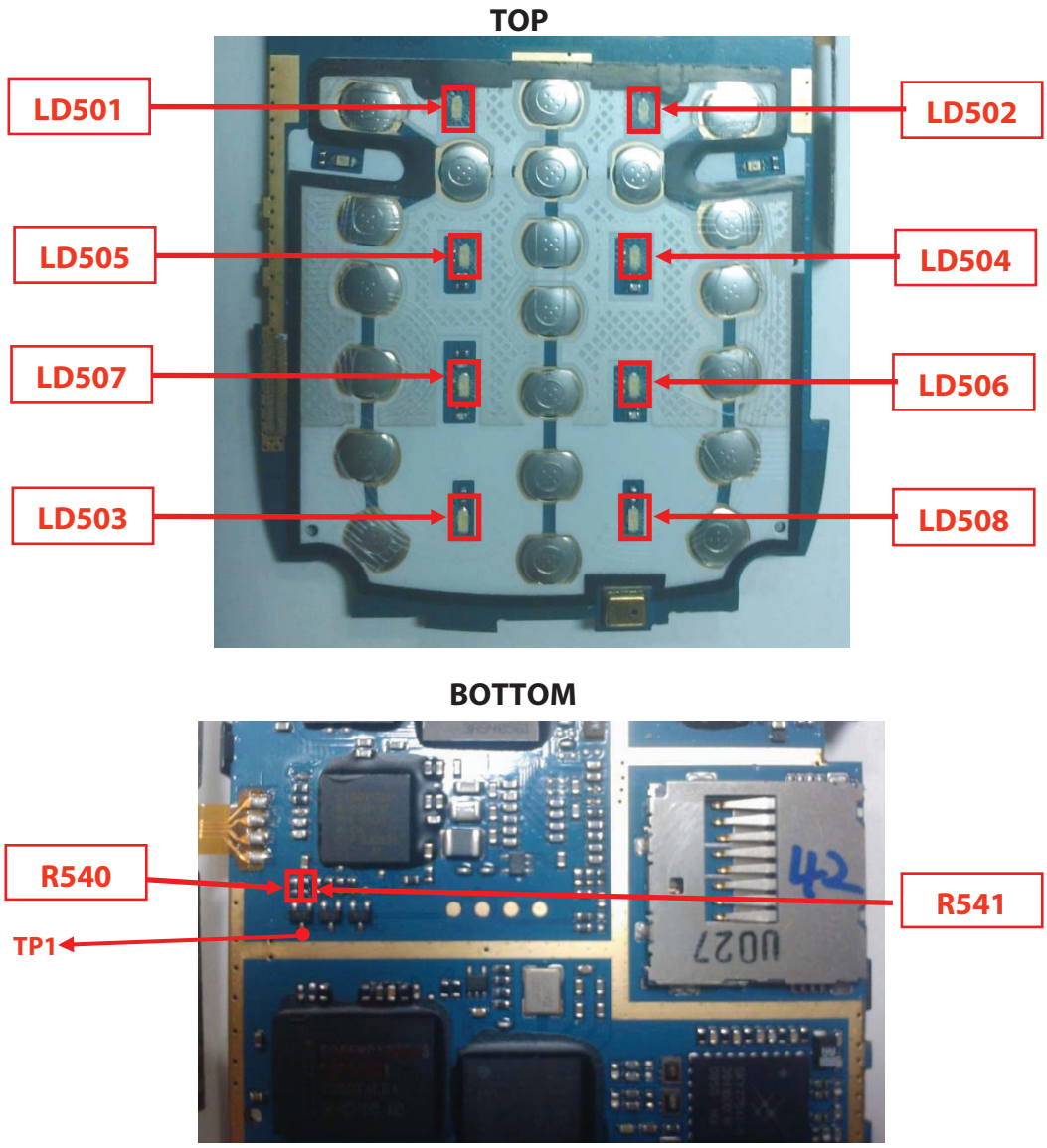


Figure 4.15.1

CIRCUIT

[Main Key backlight LED interface]

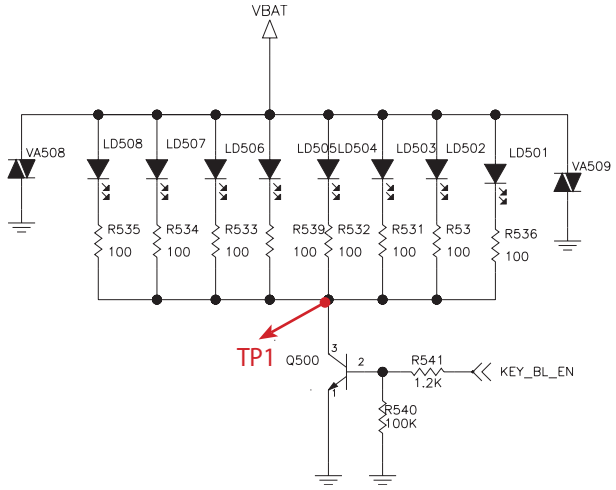
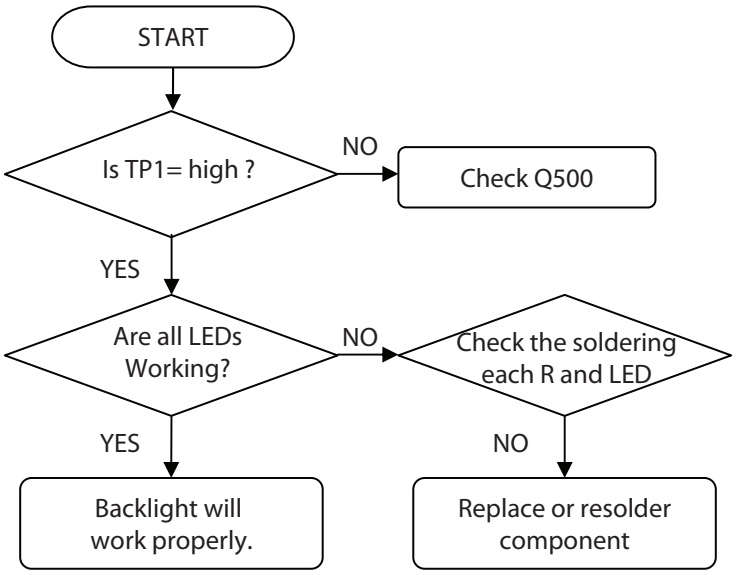


Figure 4.15.2

CHECKING FLOW



4.16 Micro SD Trouble

TEST POINT

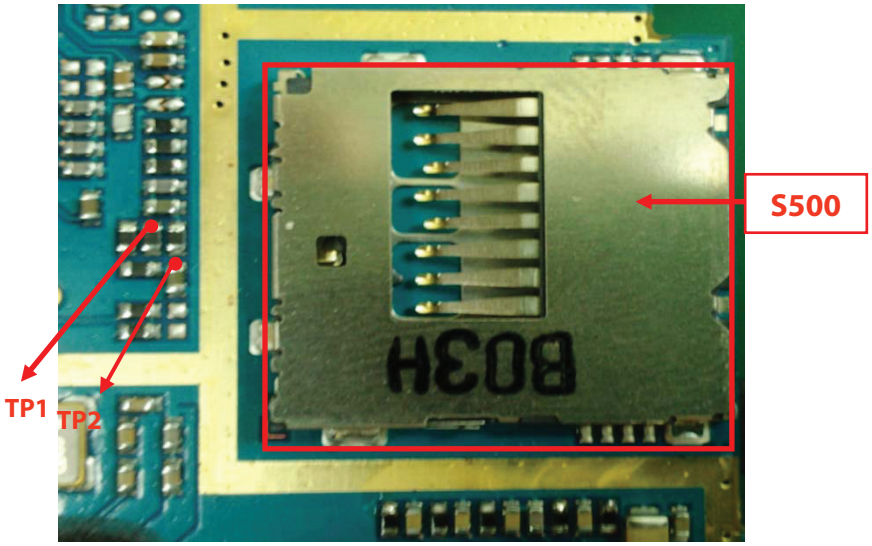


Figure 4.16.1

CIRCUIT

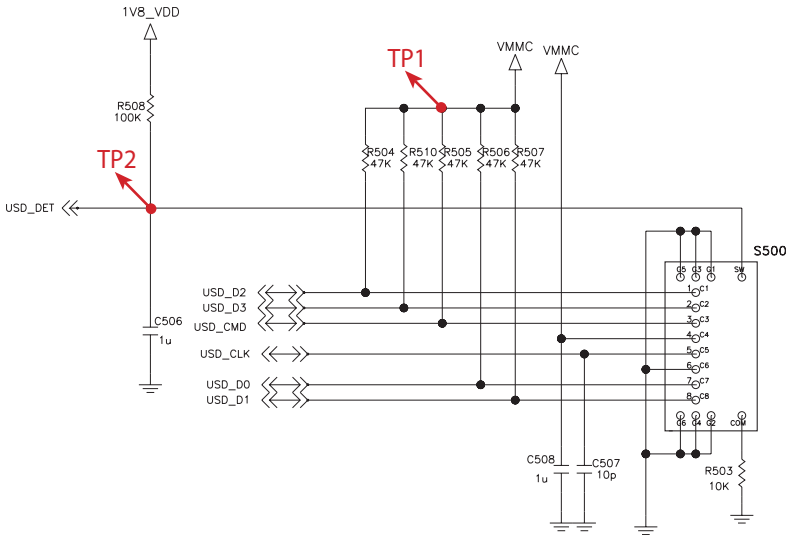
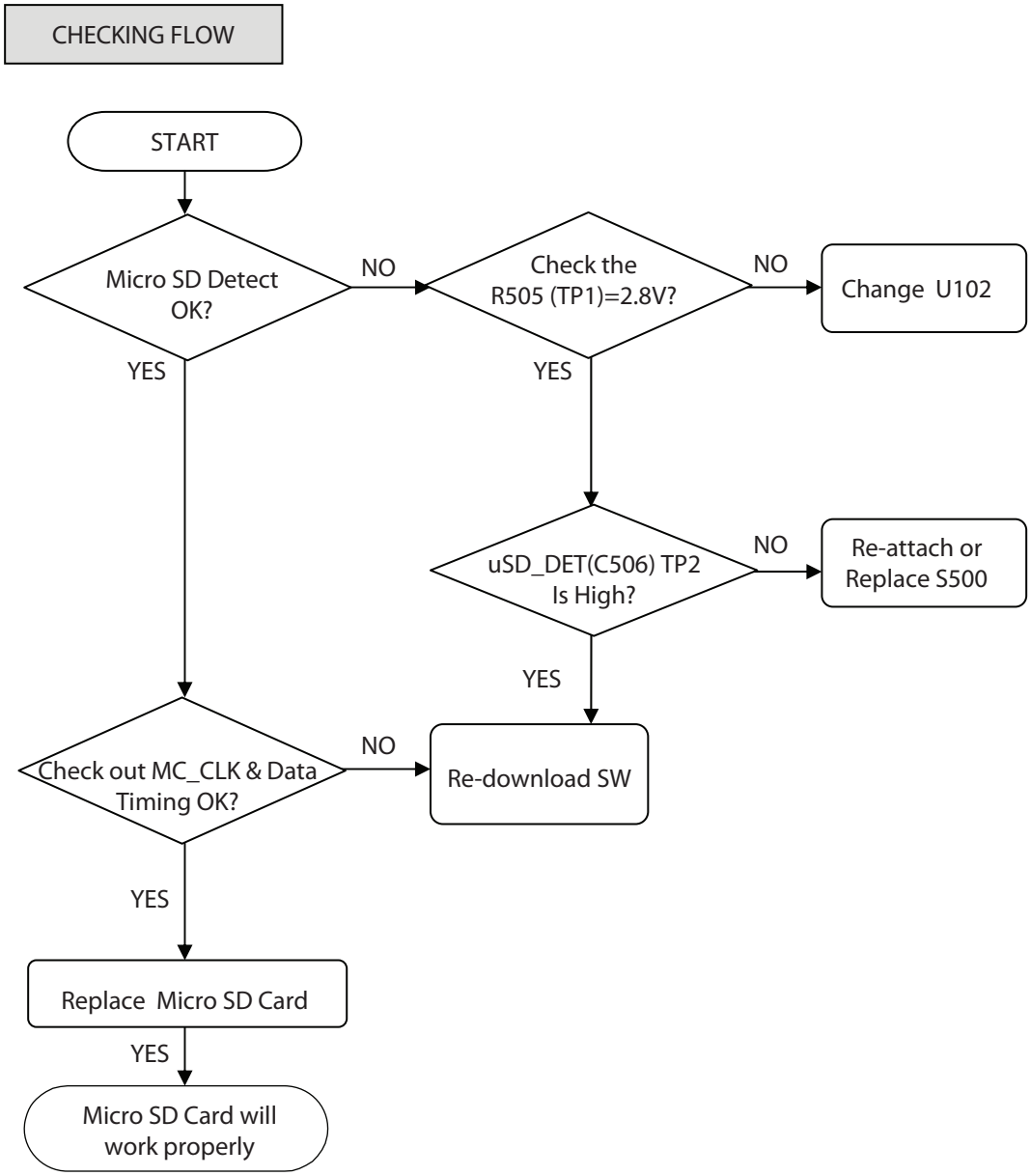


Figure 4.16.2



4.17 Bluetooth Trouble

TEST POINT

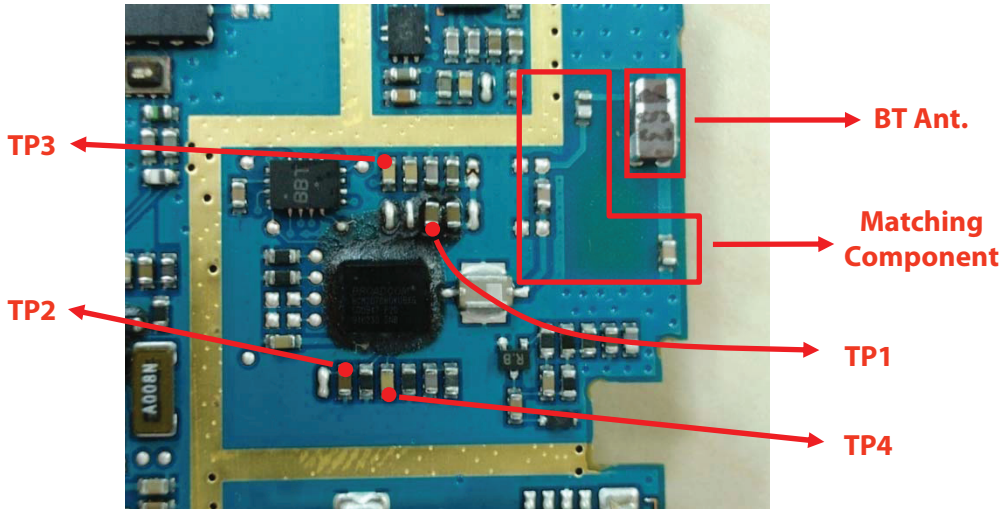


Figure 4.17.1 Bluetooth block

CIRCUIT

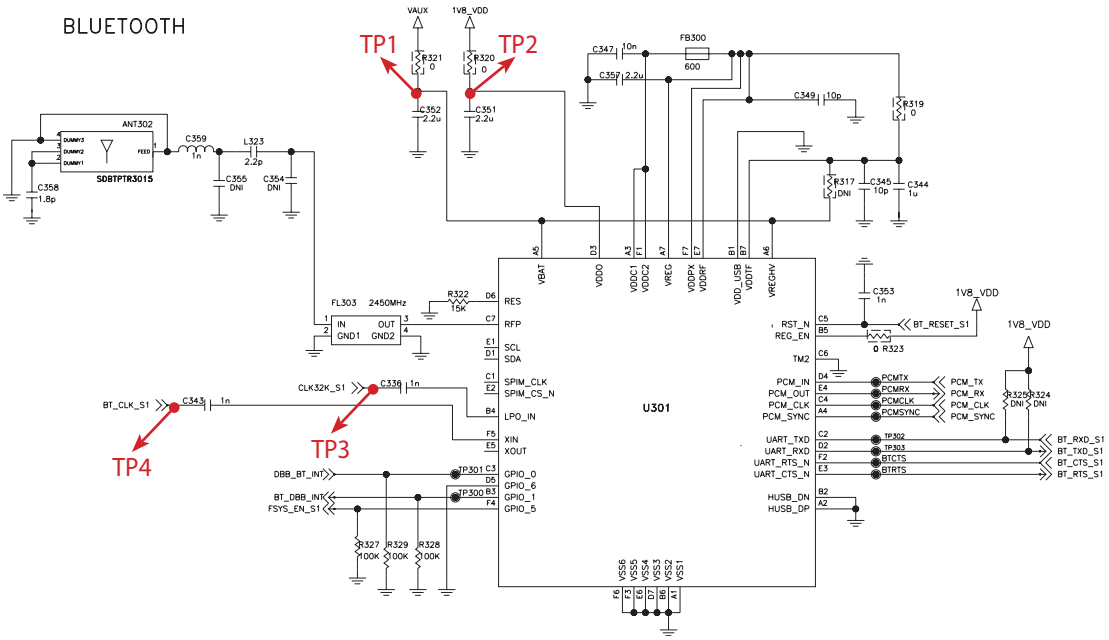
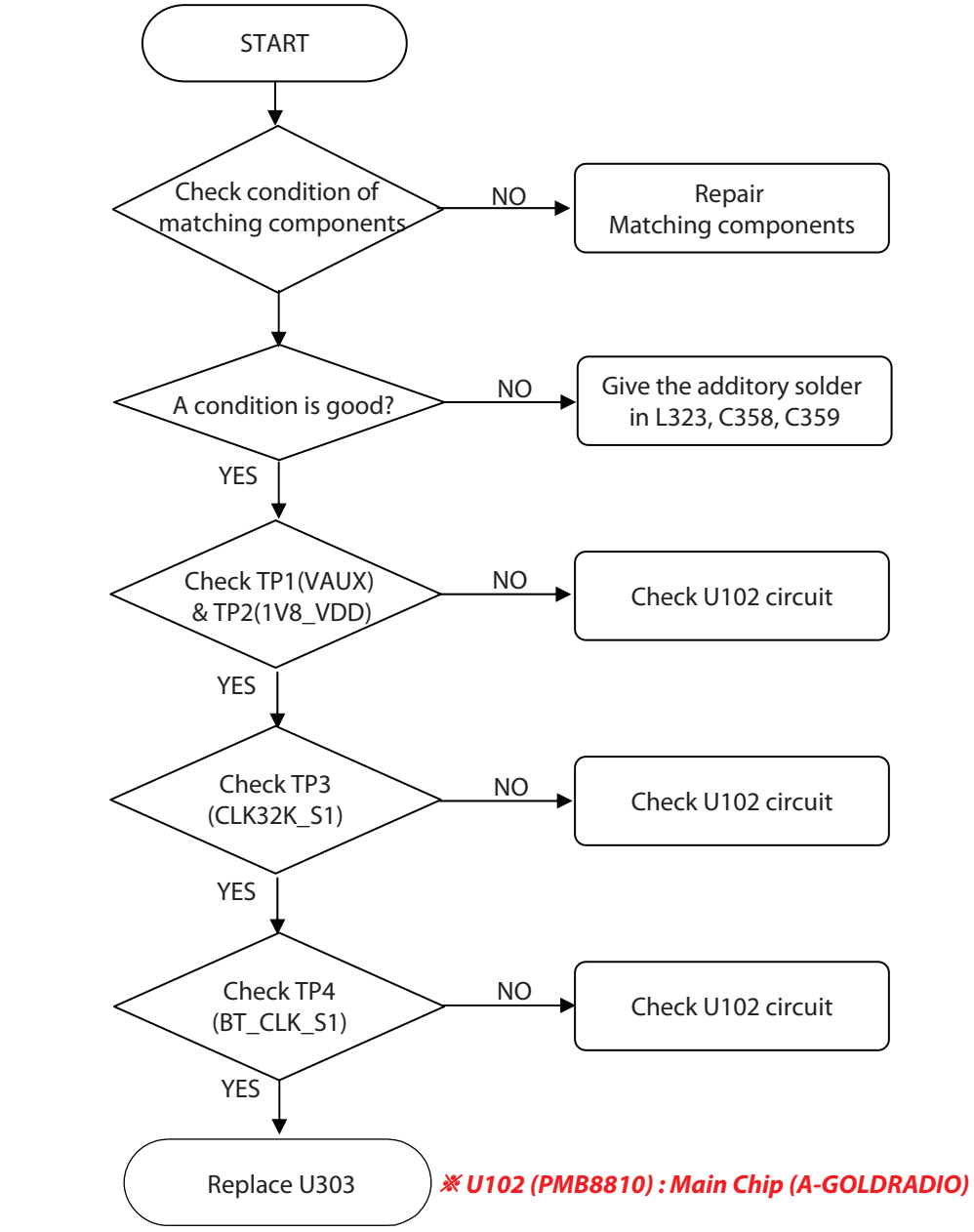


Figure 4.17.2 Bluetooth circuit

CHECKING FLOW



4.18 FM Radio Trouble

TEST POINT

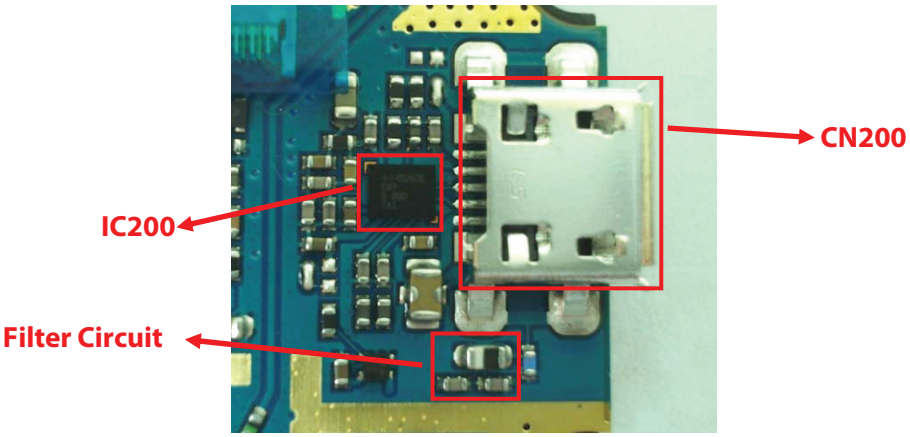


Figure 4.18.1 FM Radio test point

CIRCUIT

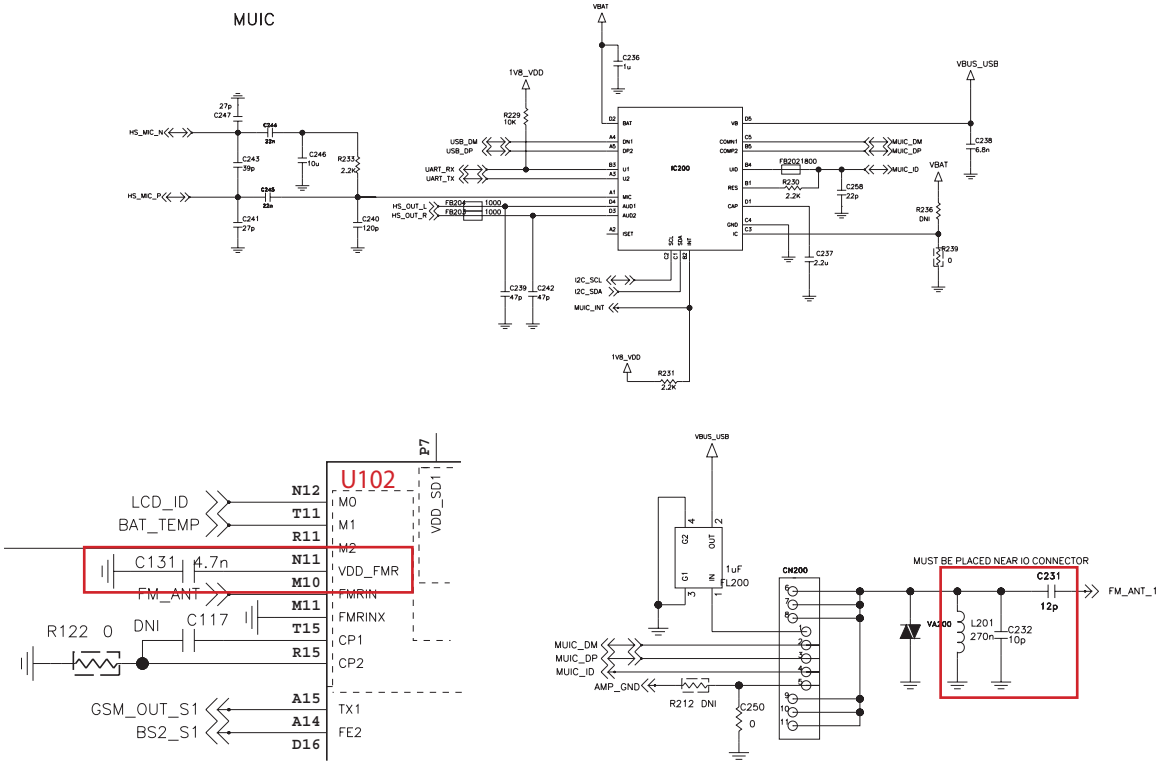
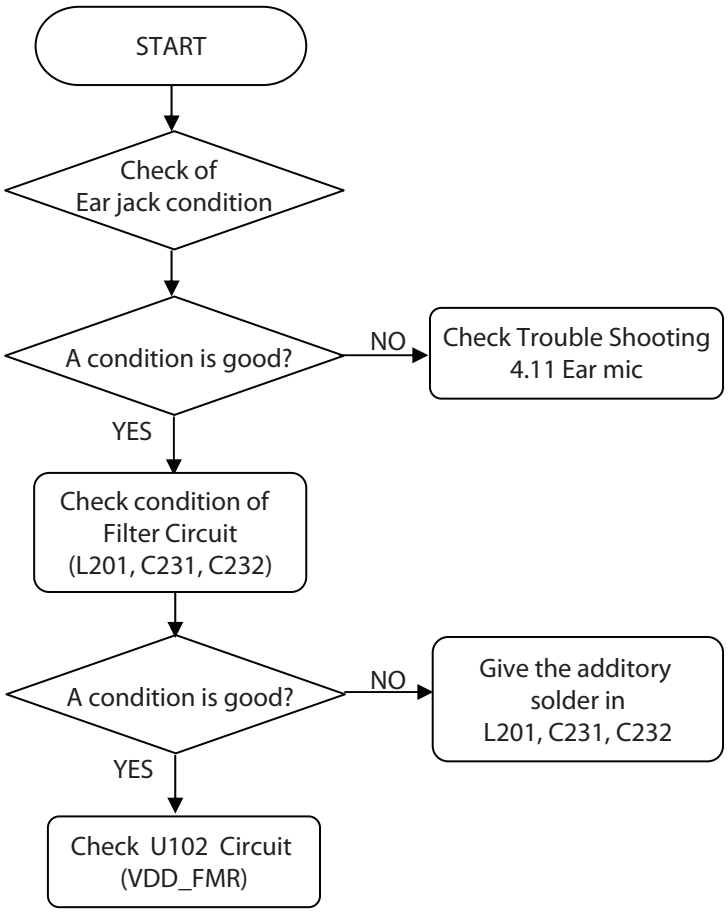
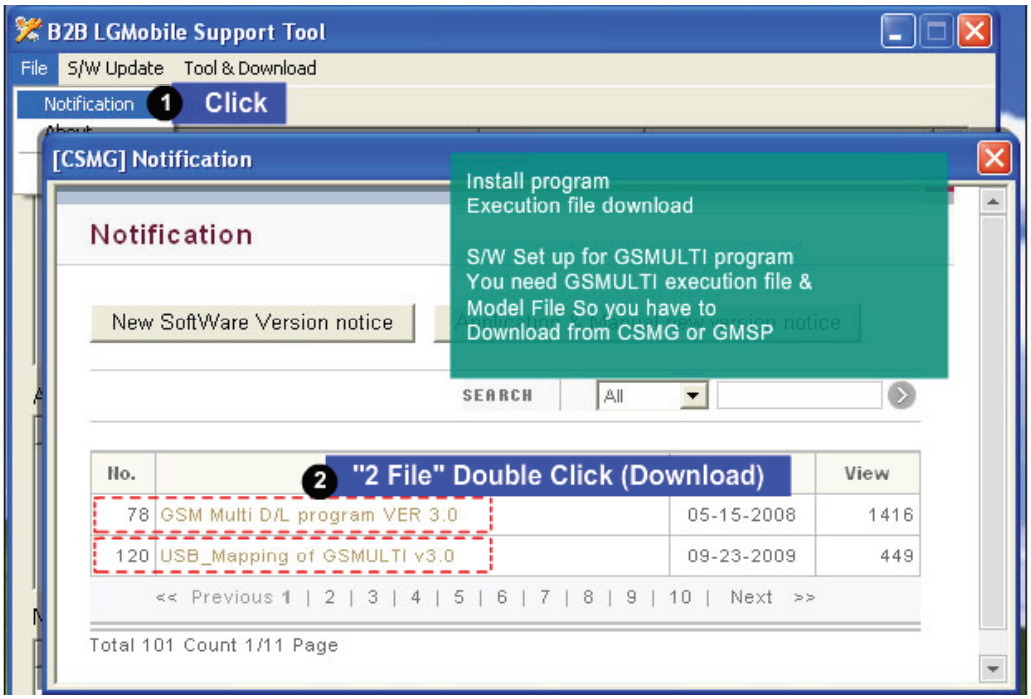


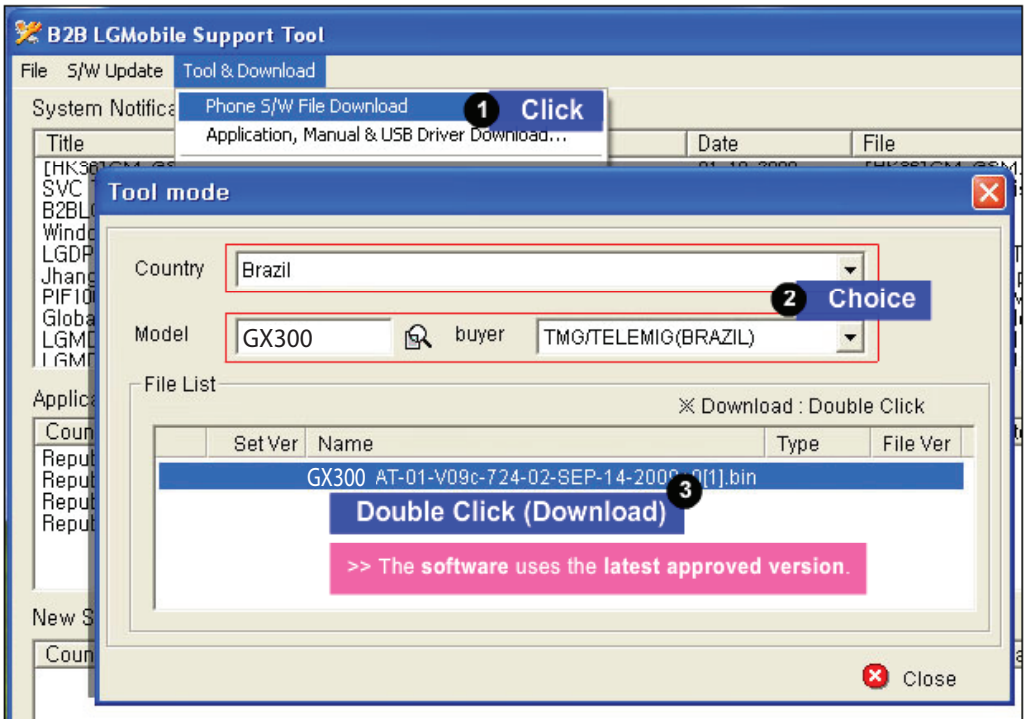
Figure 4.18.2 FM Radio circuit

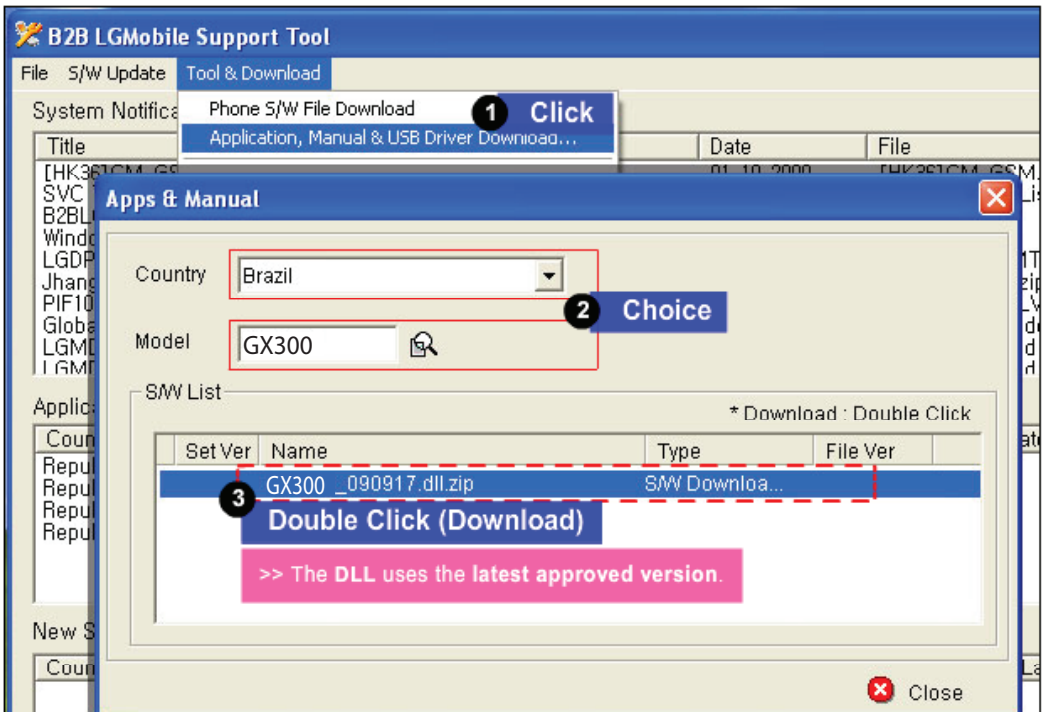
CHECKING FLOW

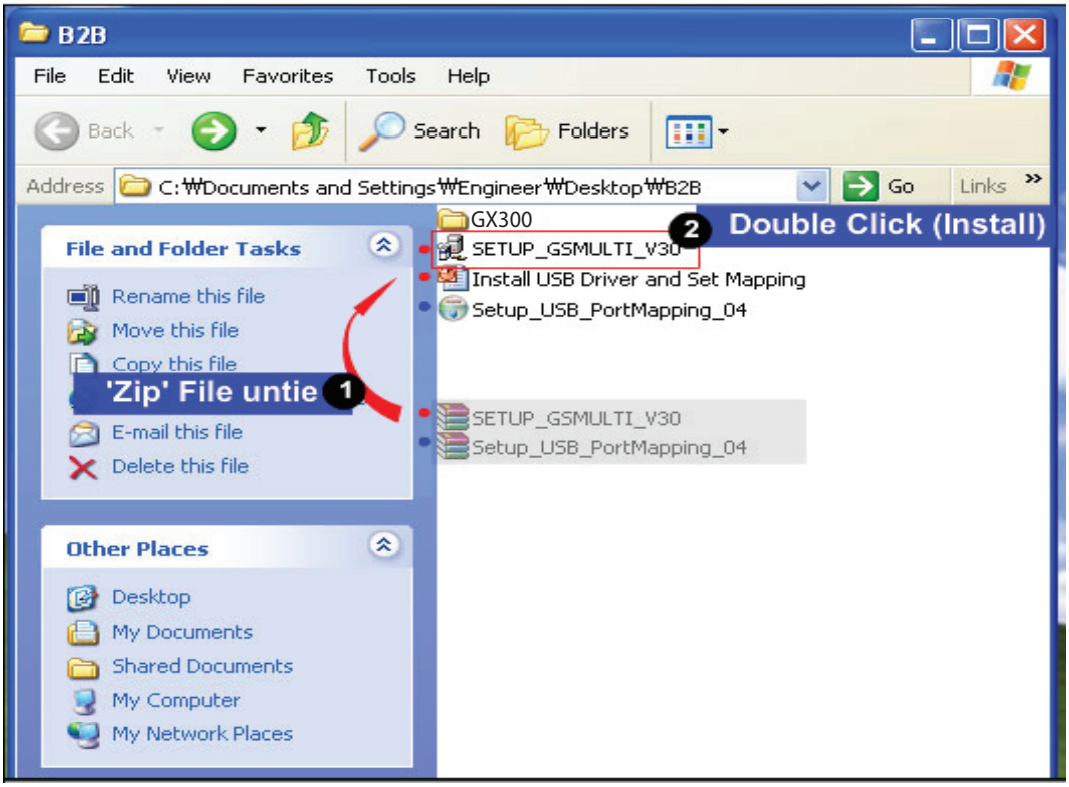


5. DOWNLOAD

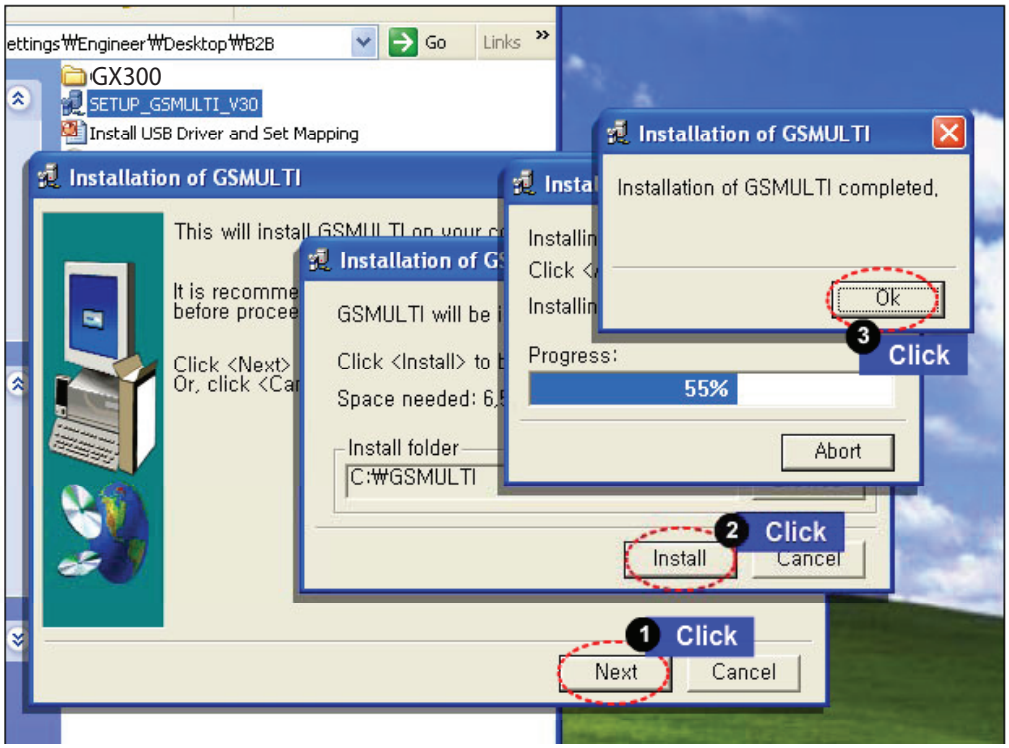


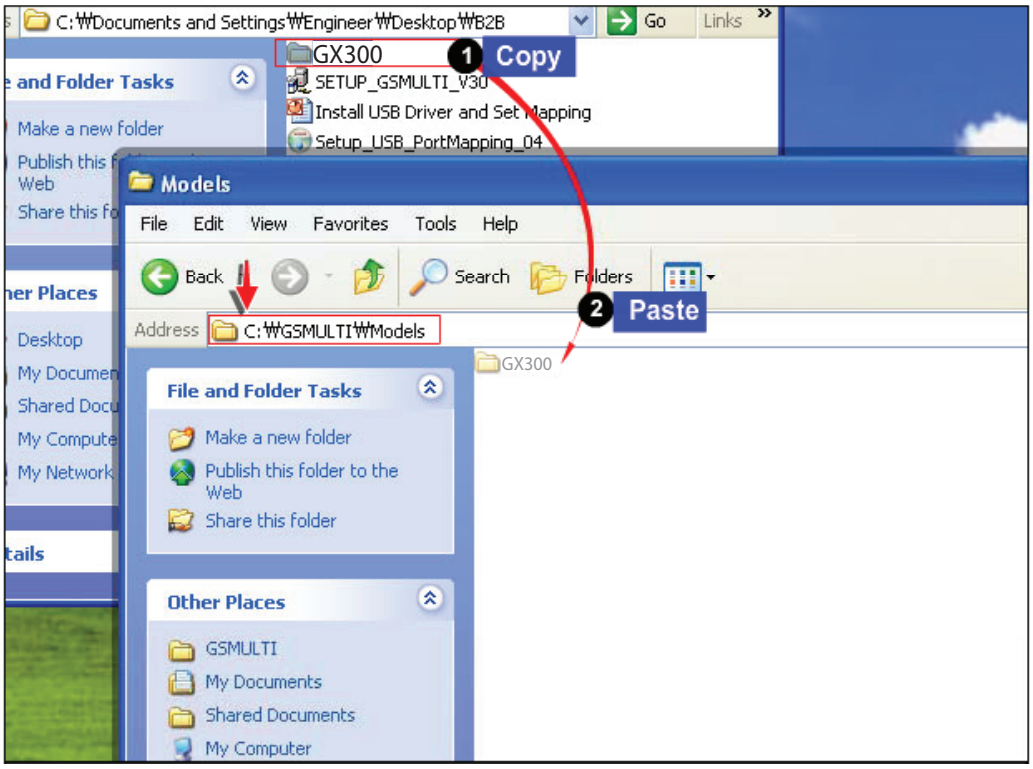


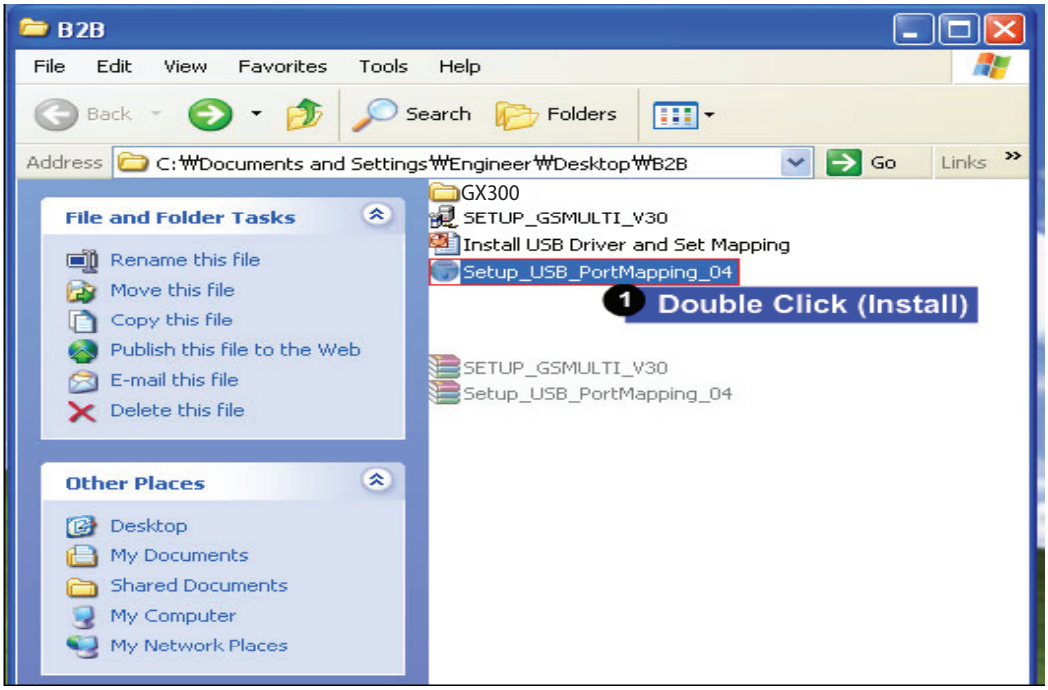


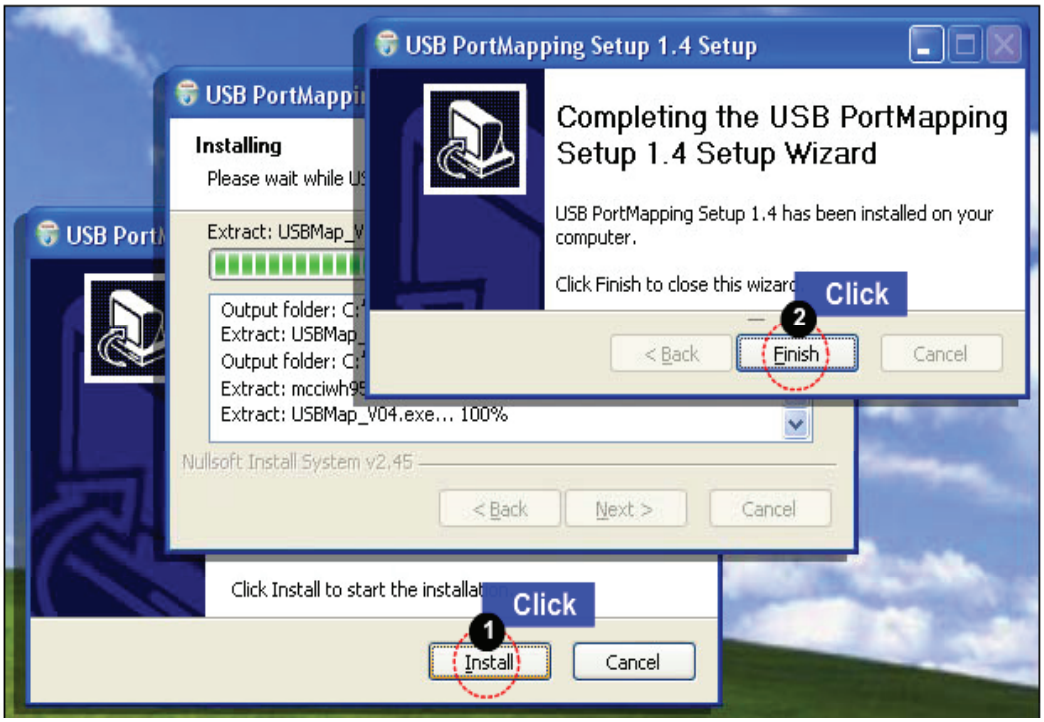


5. DOWNLOAD

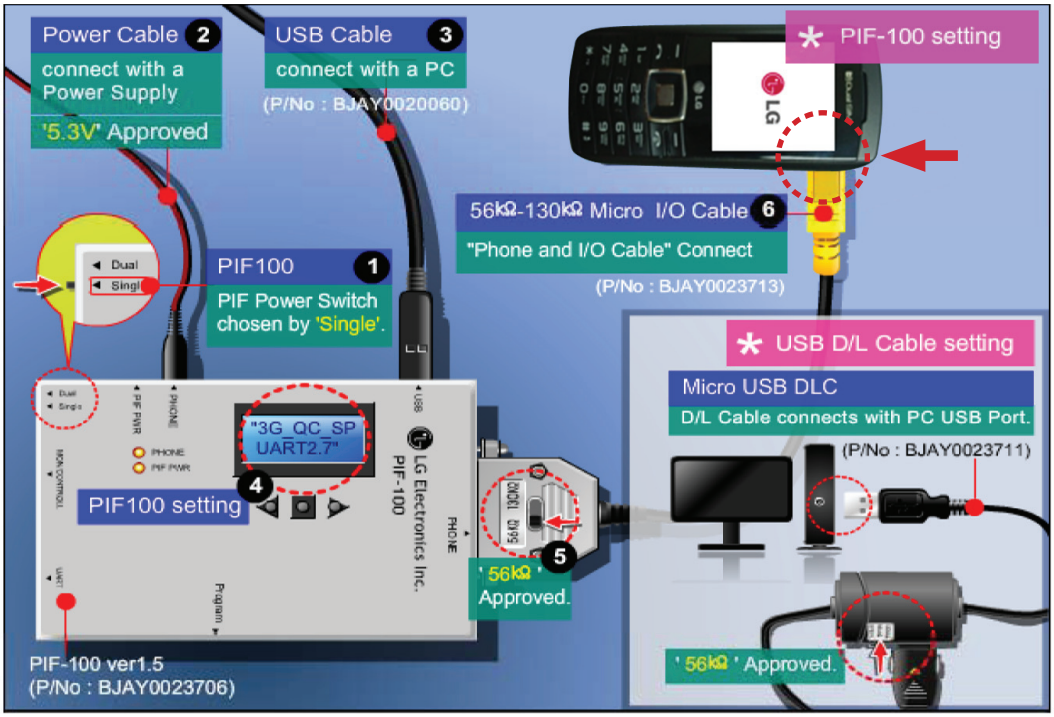


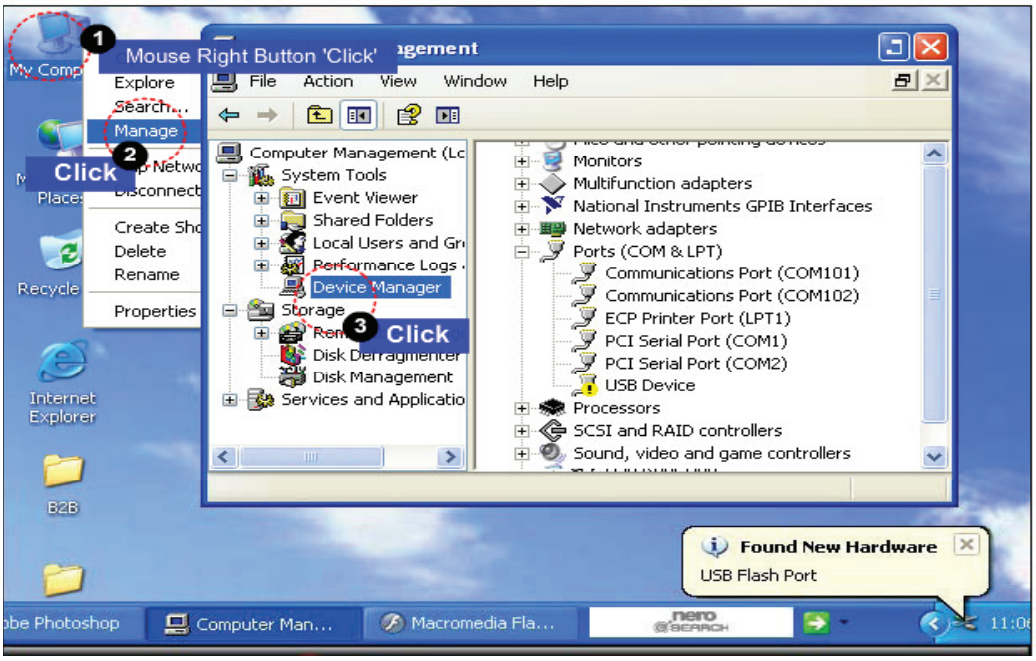


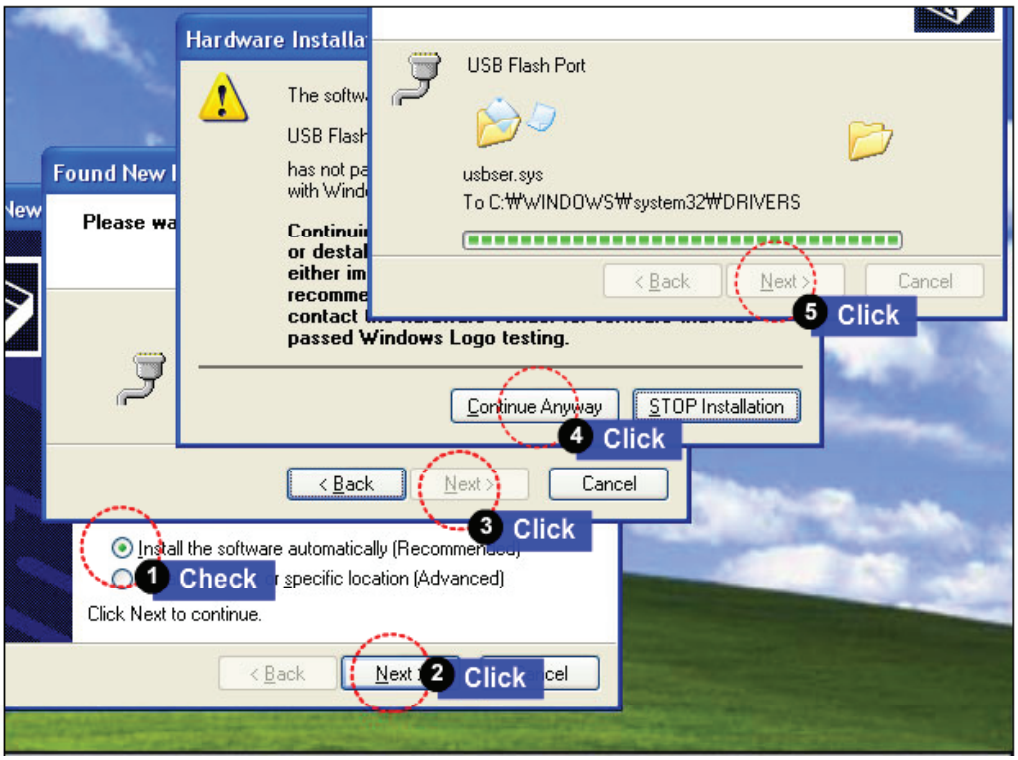


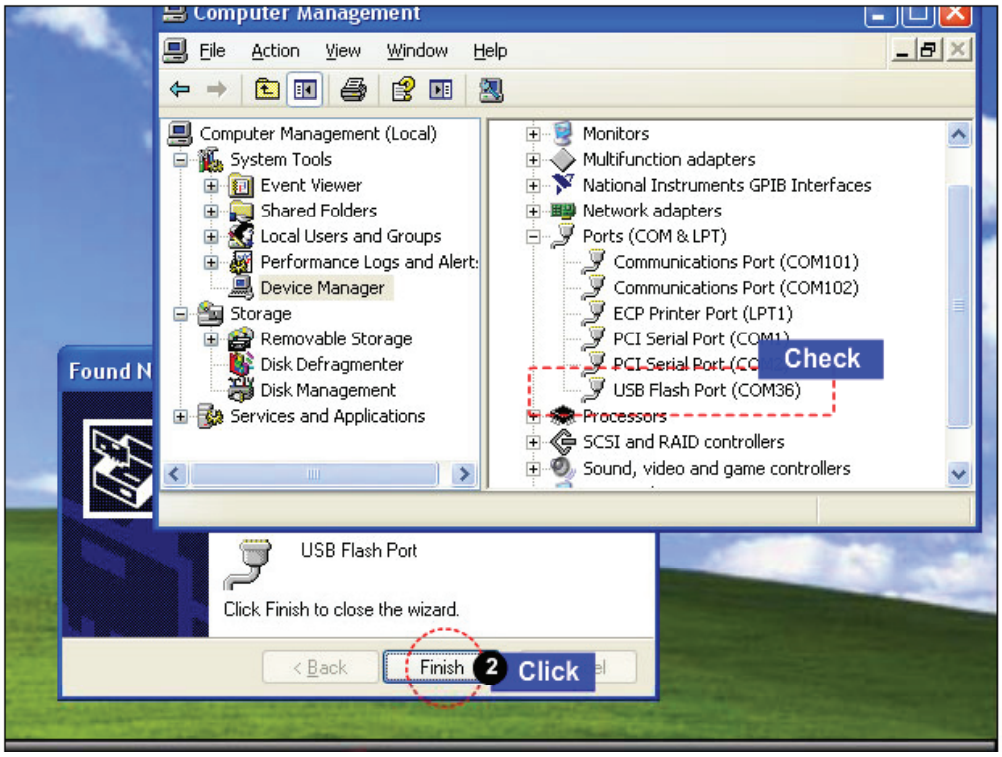


5. DOWNLOAD

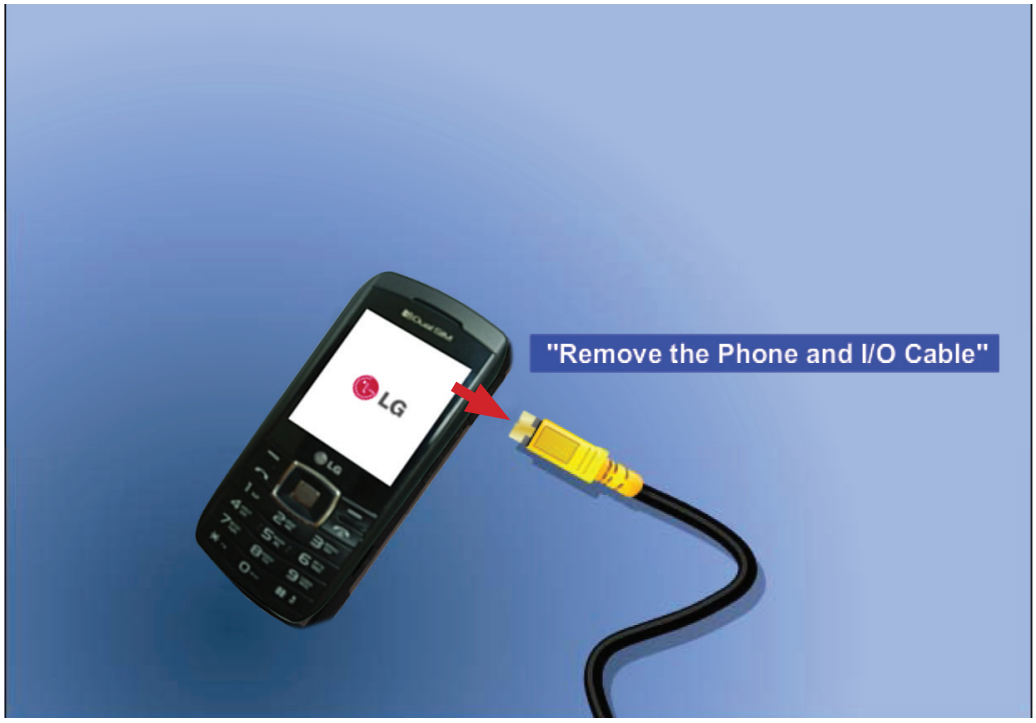


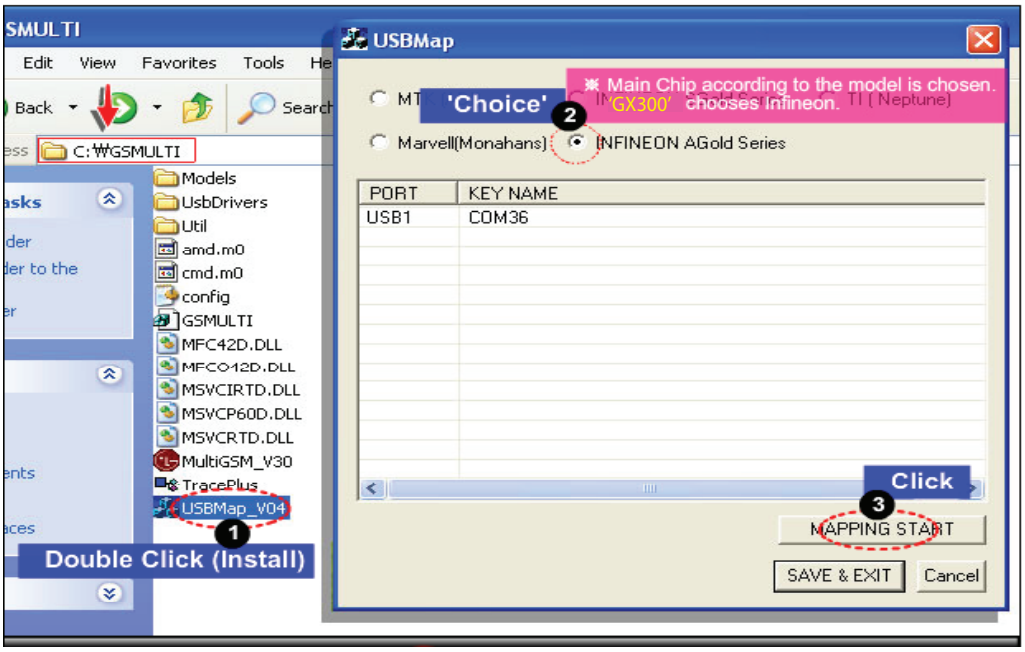


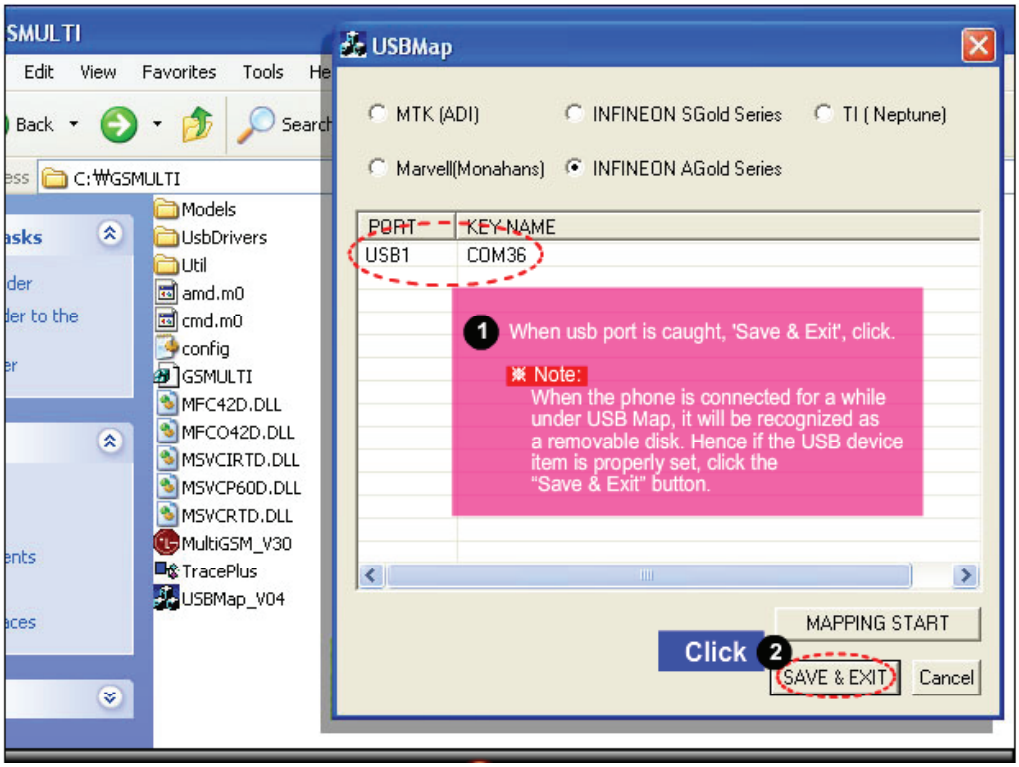




5. DOWNLOAD







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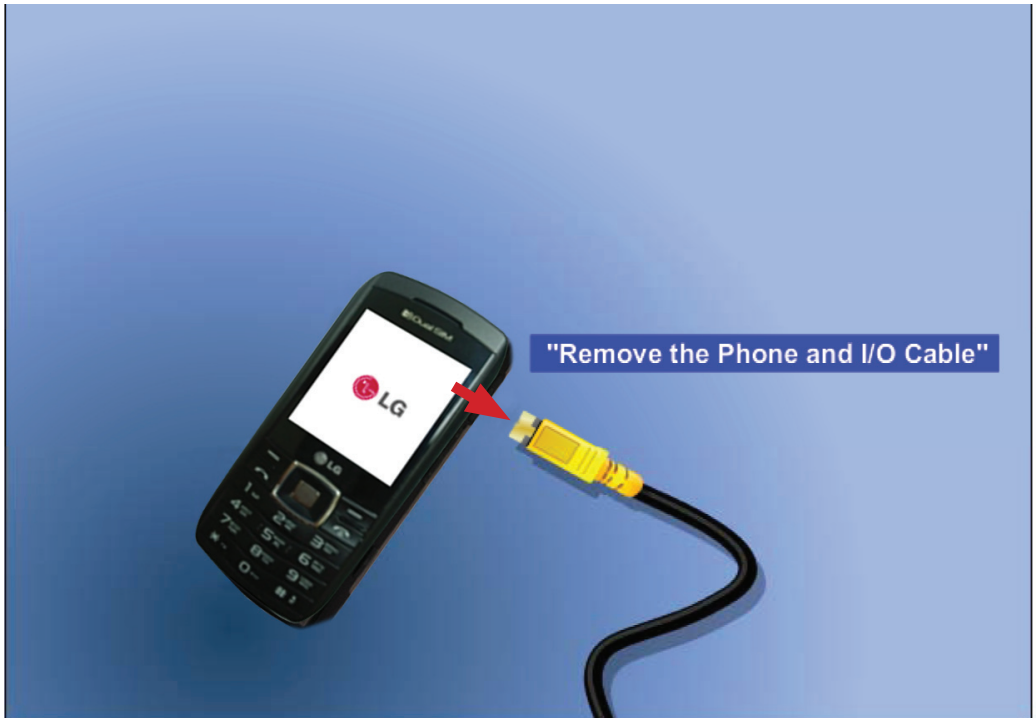

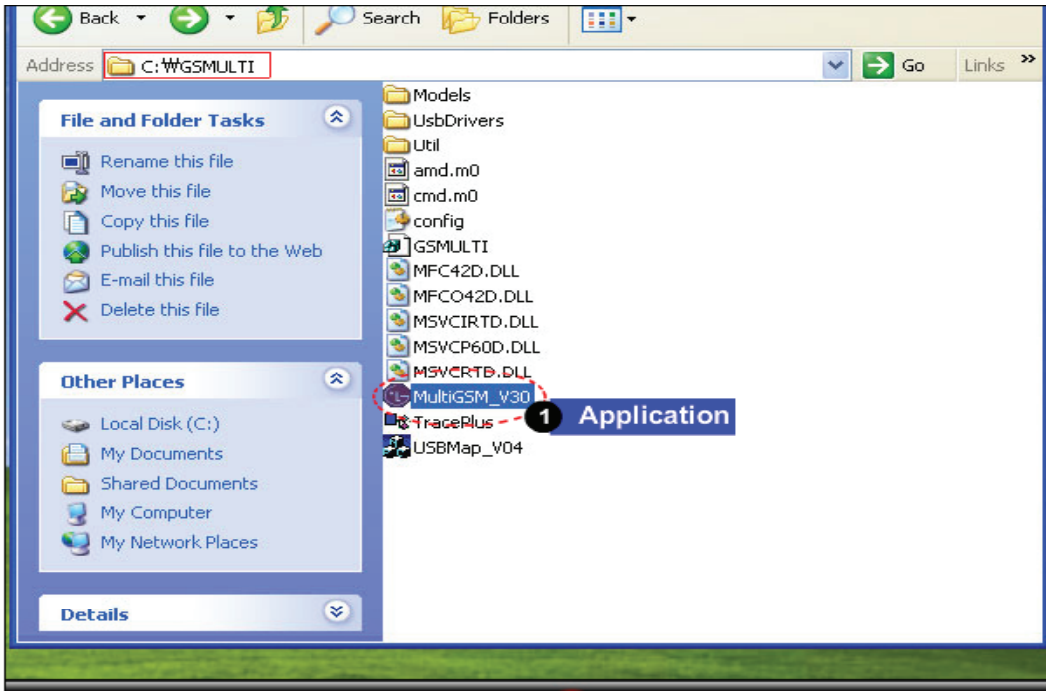

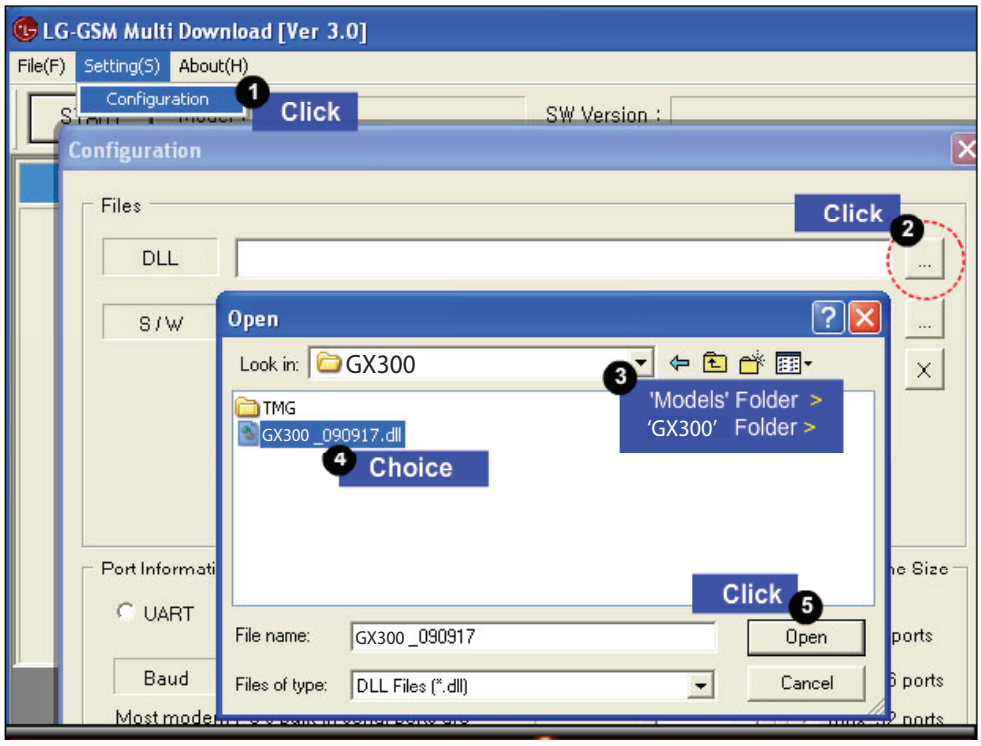

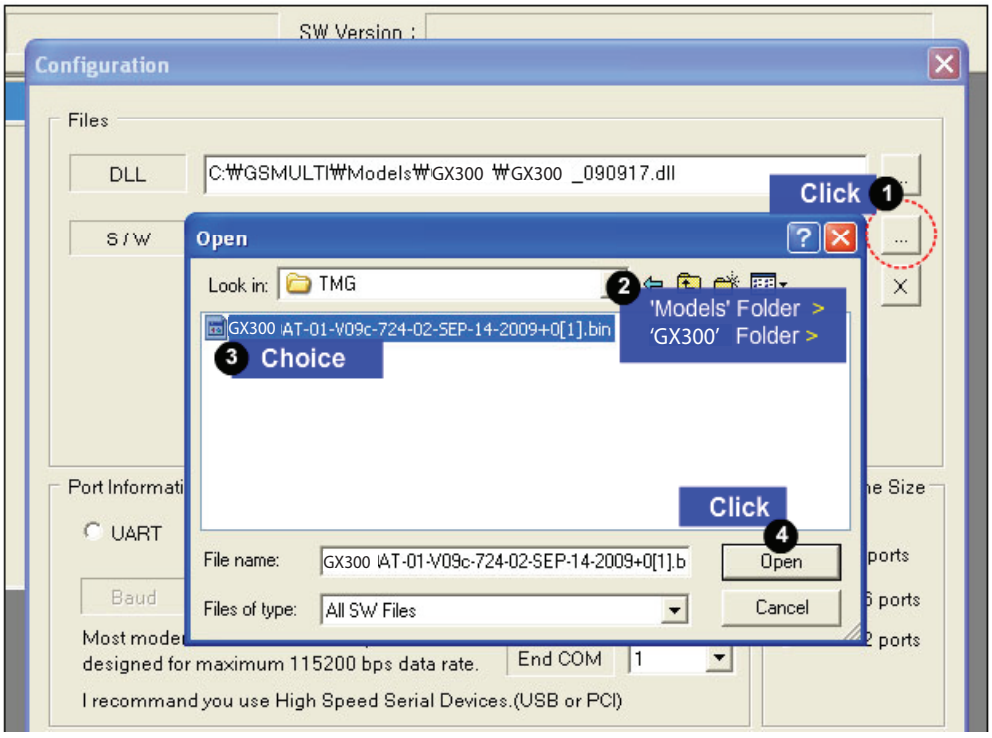

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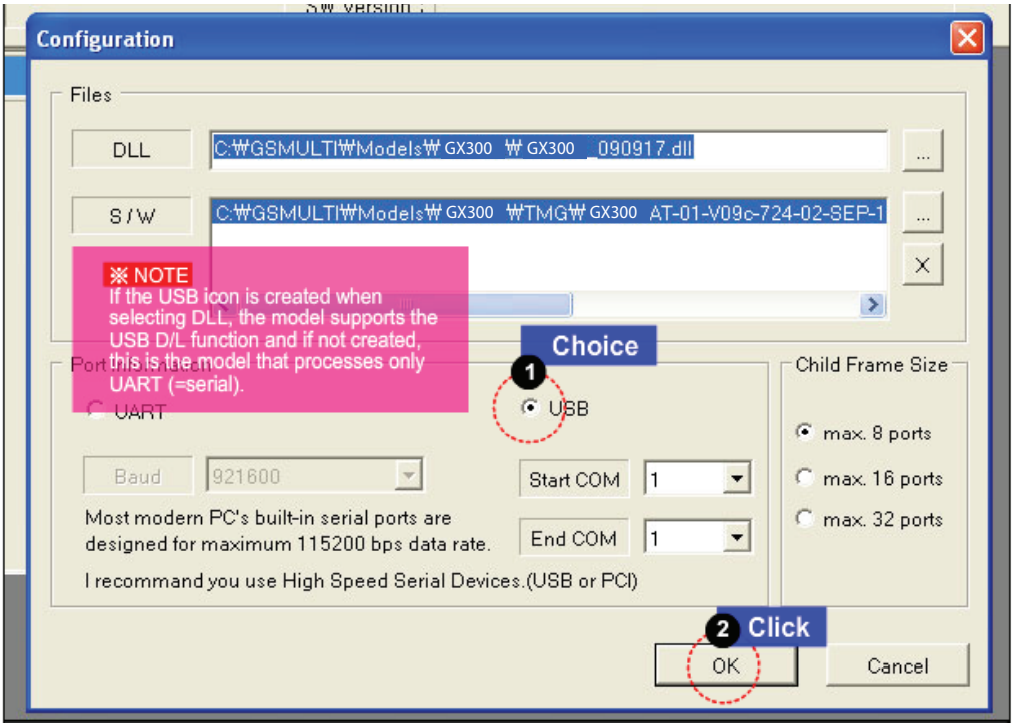
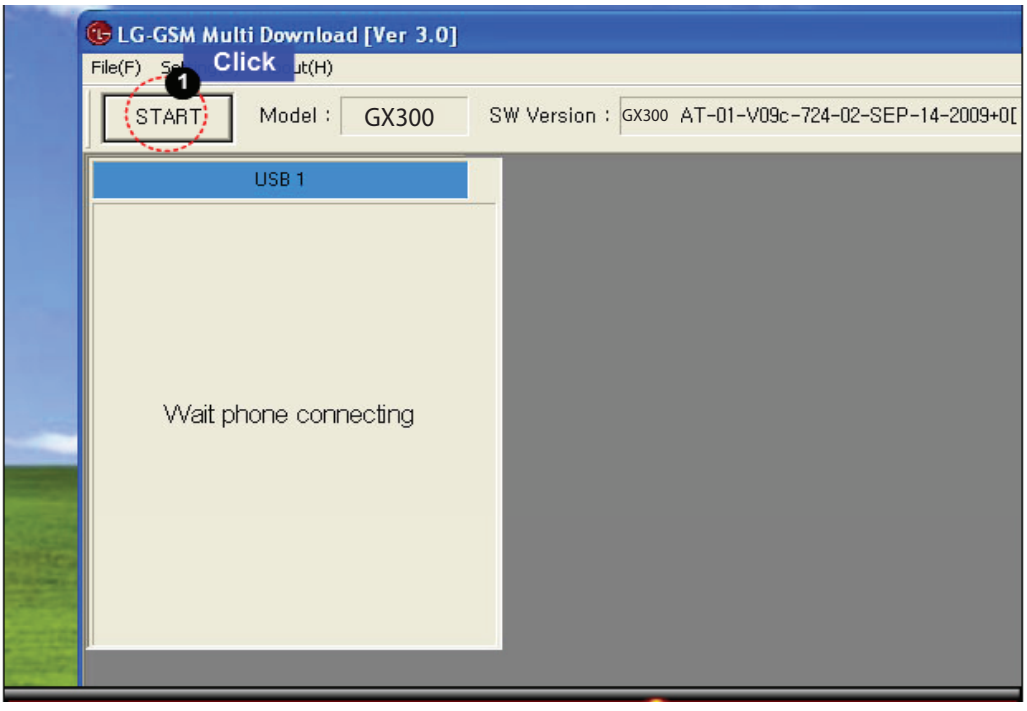
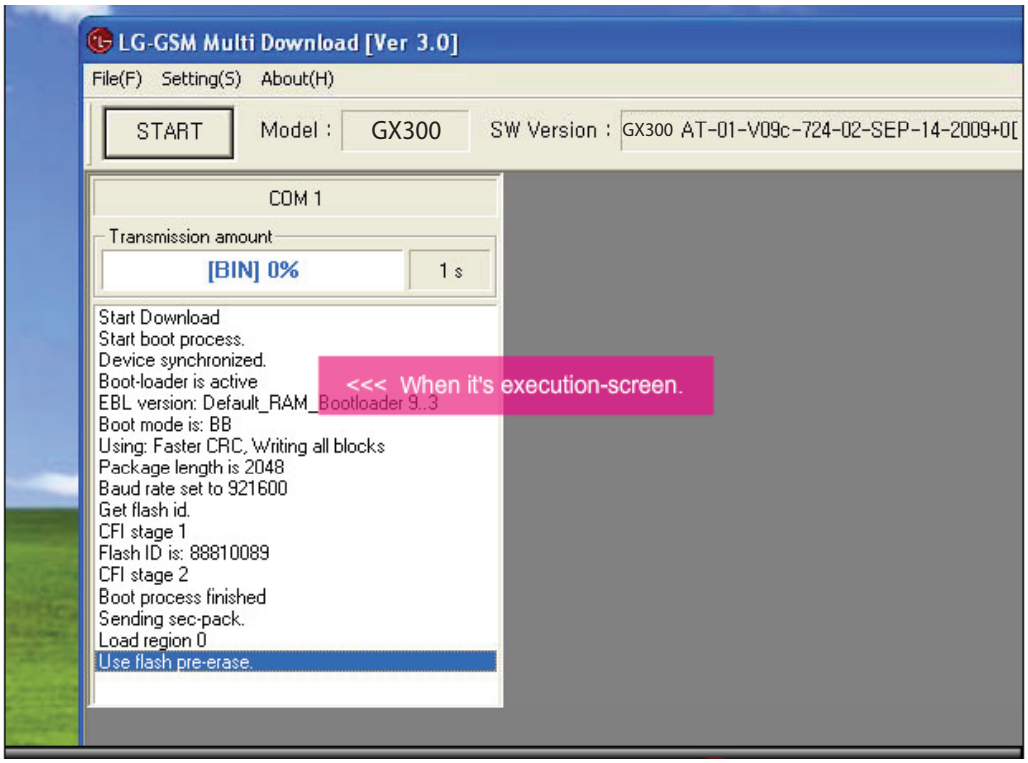
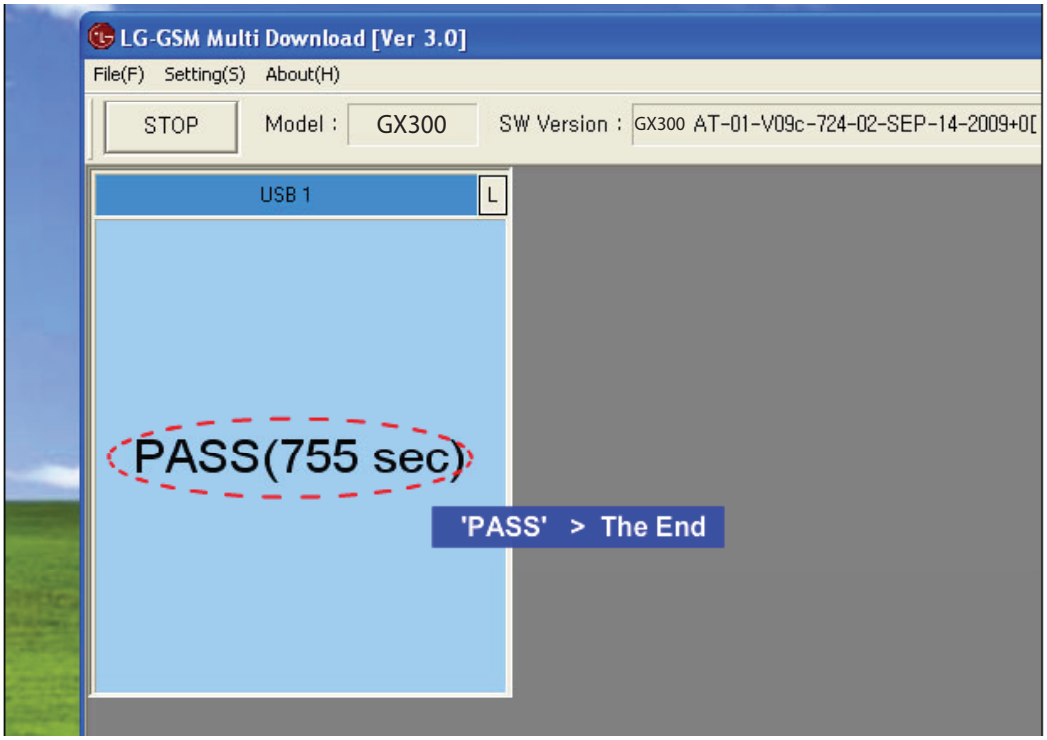


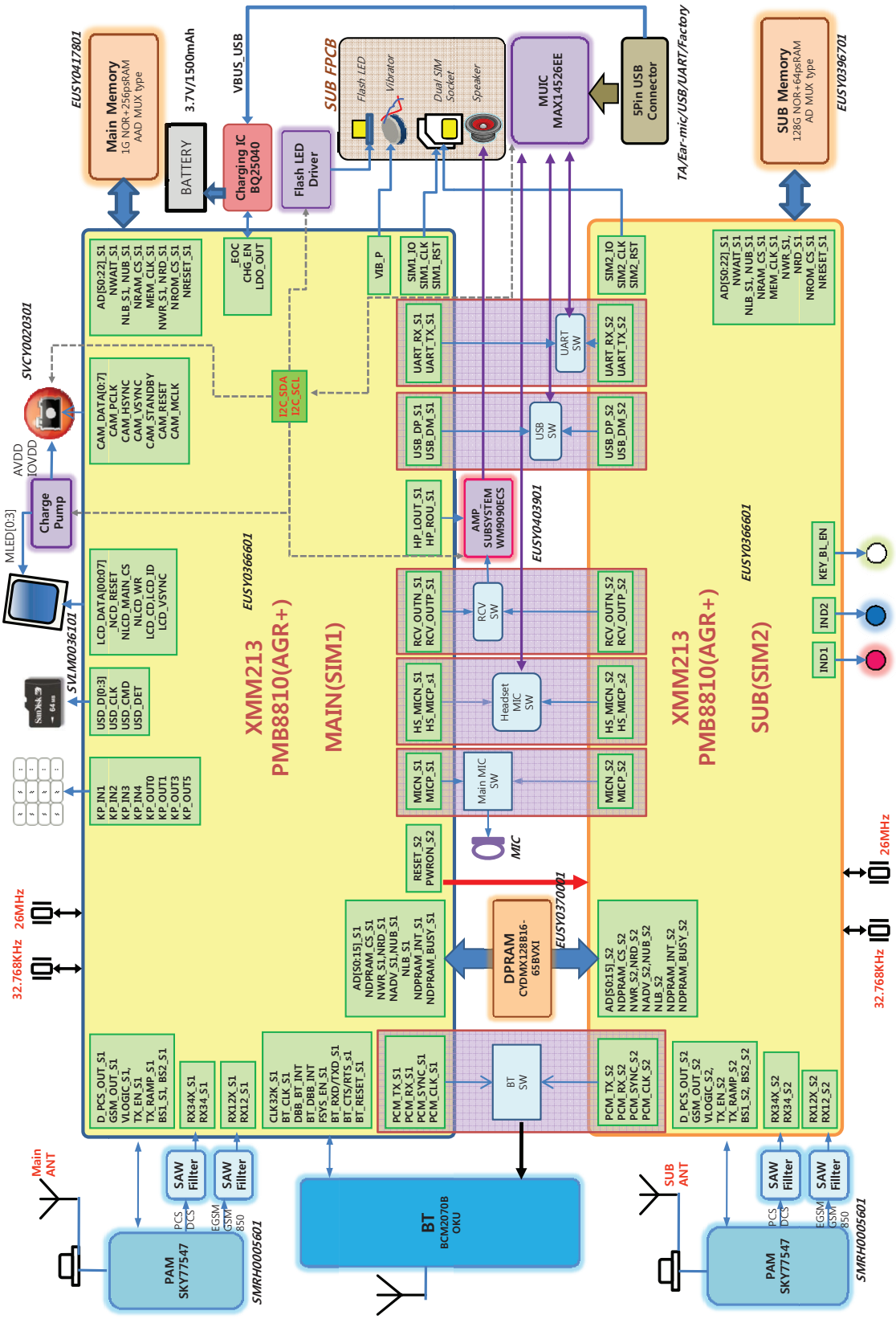




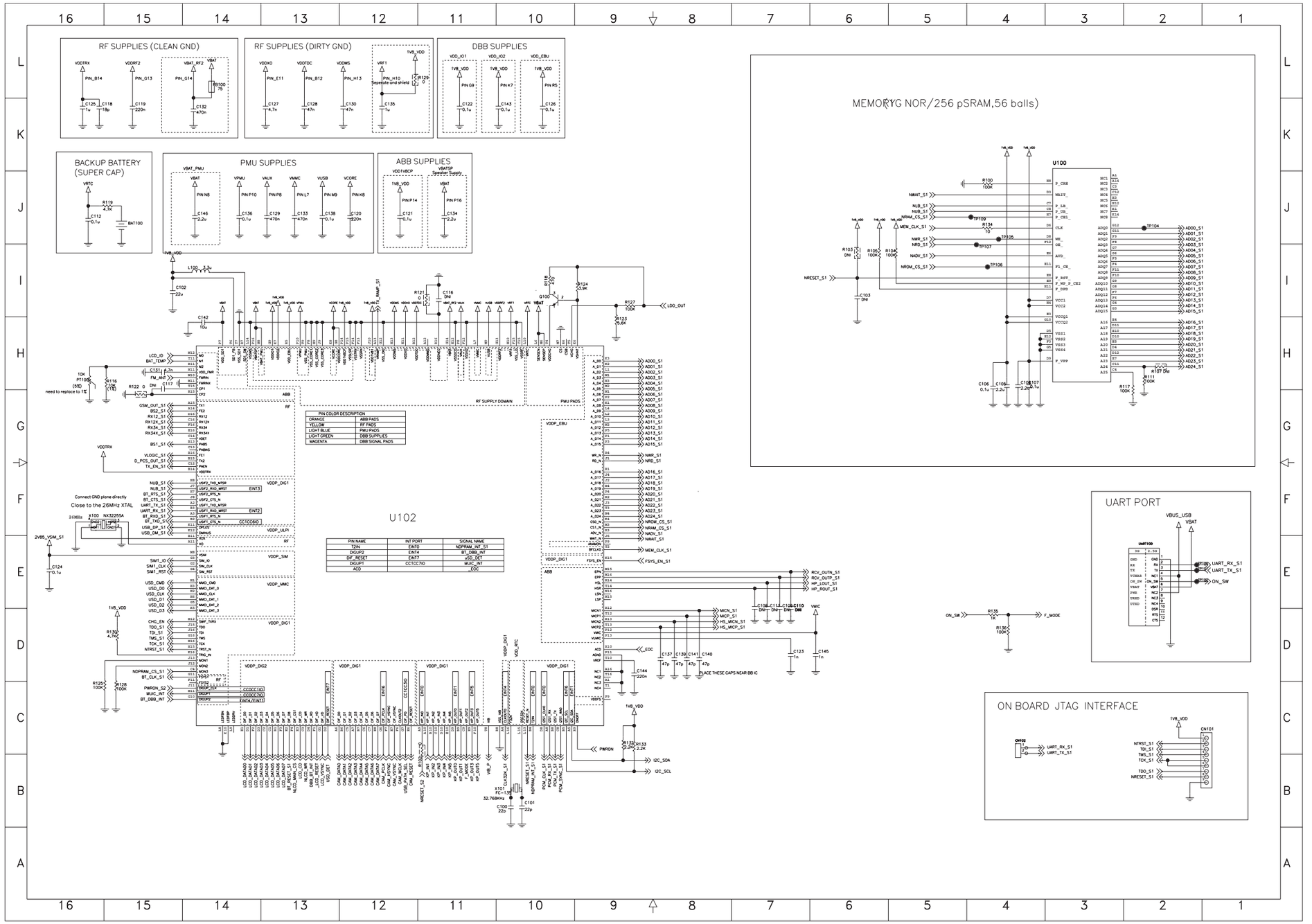
5. DOWNLOAD



6. BLOCK DIAGRAM

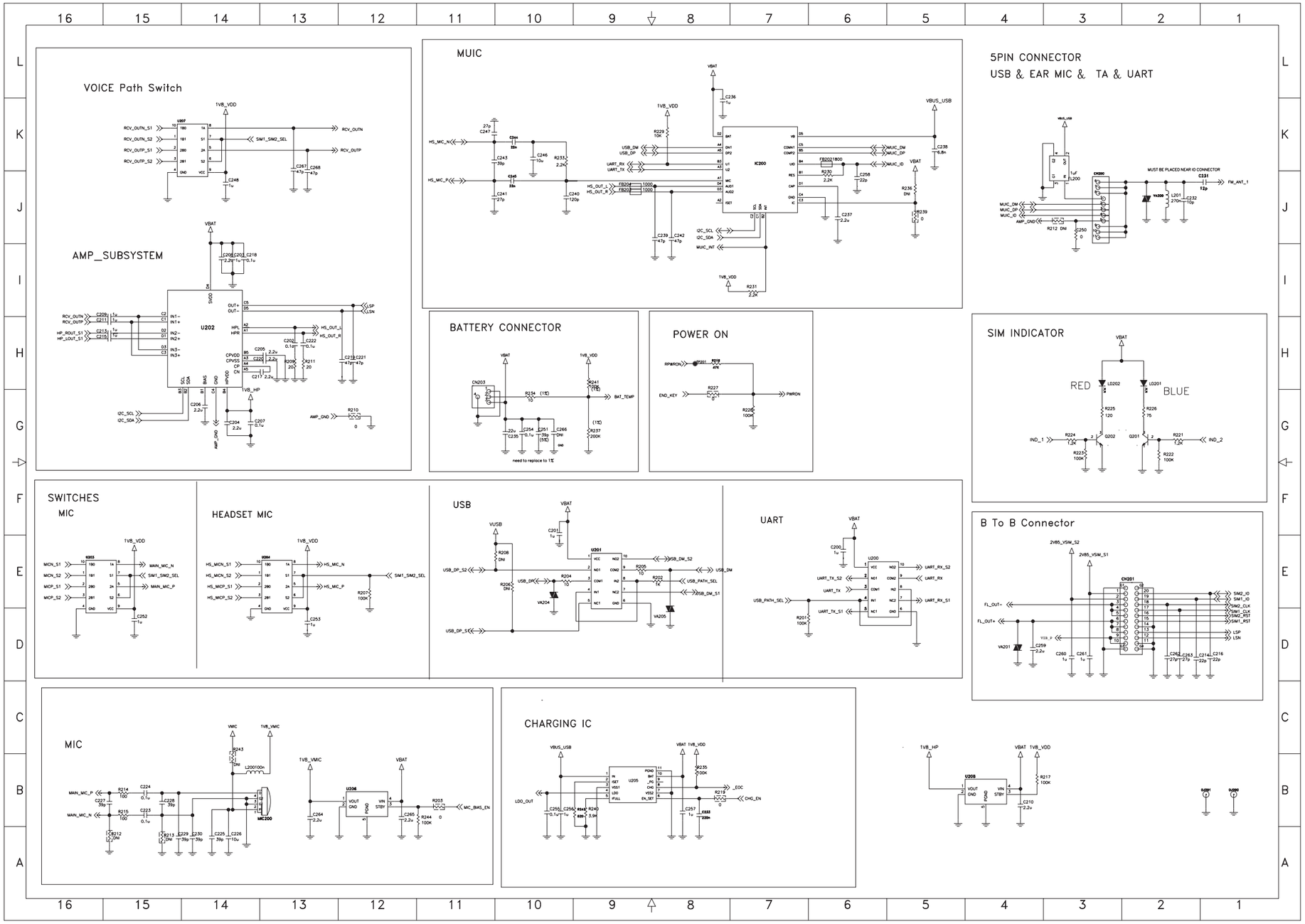


7. CIRCUIT DIAGRAM

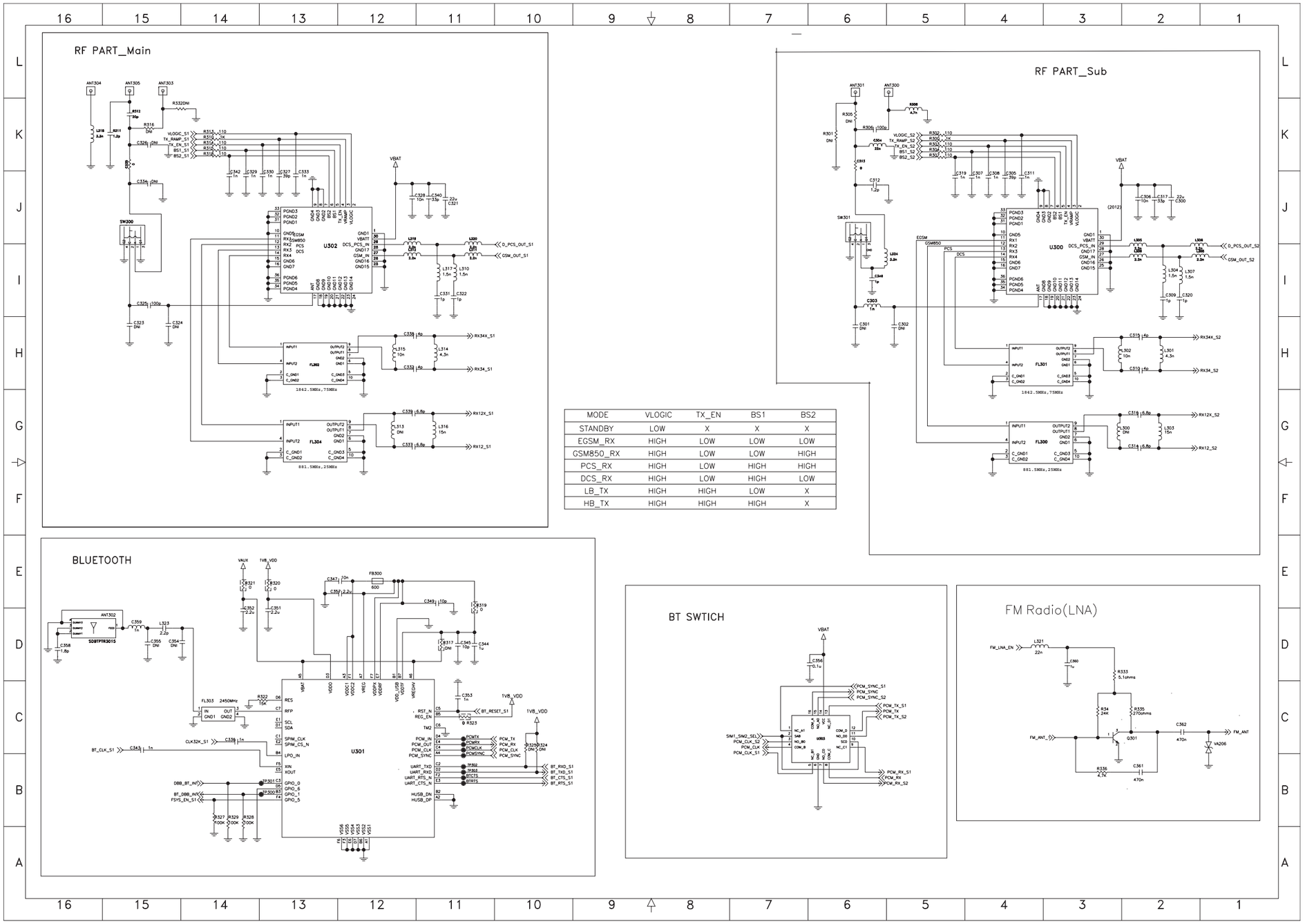


PIN NAME	INT PORT	SIGNAL NAME
T2IN	EINT0	NOPRAM_INT_S1
DIGUP2	EINT4	BT_DBB_INT
DIF_RESET	EINT7	USD_DET
DIGUP1	CC1CC7IO	MUIC_INT
ACID		EOC

7. CIRCUIT DIAGRAM

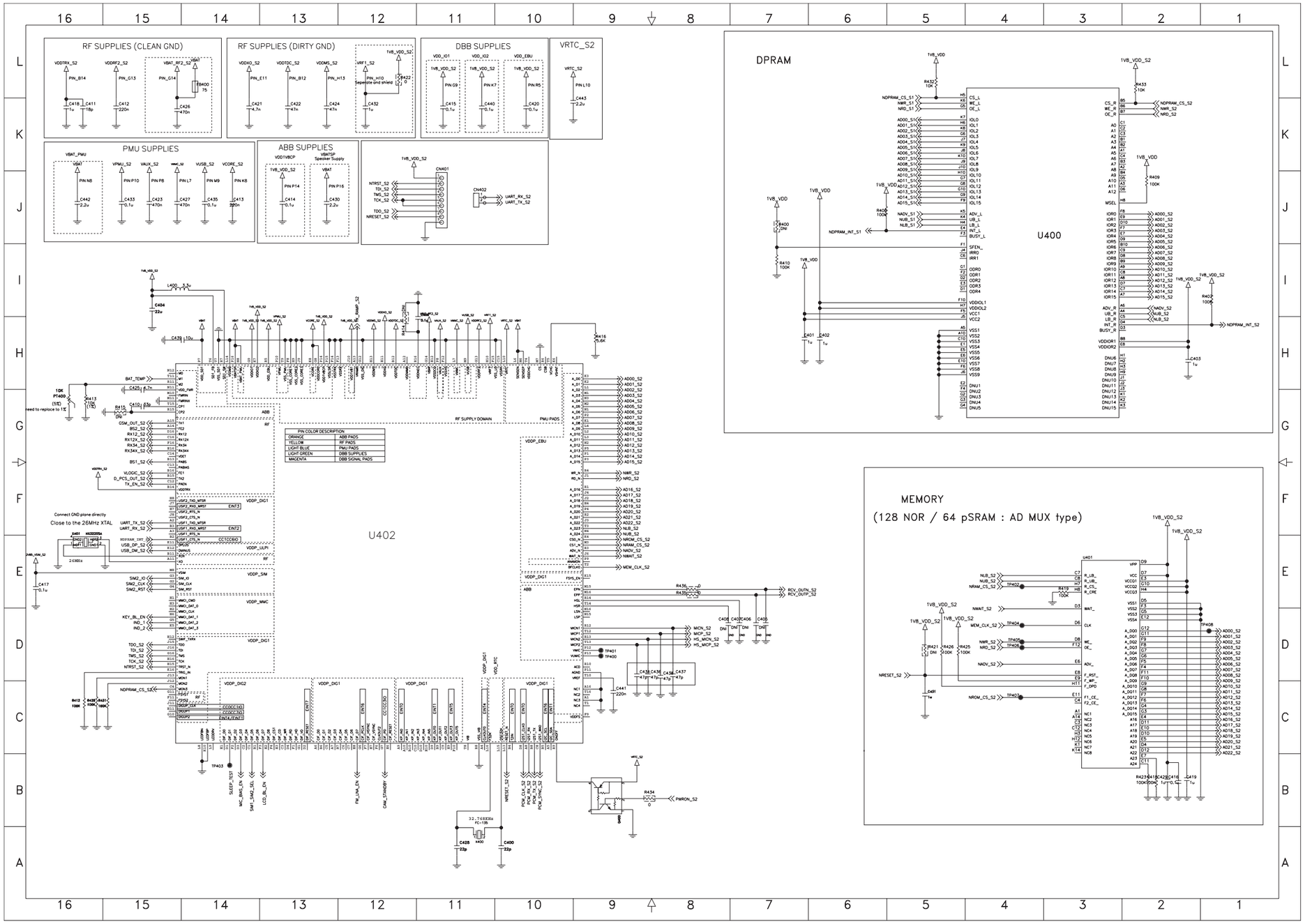


7. CIRCUIT DIAGRAM

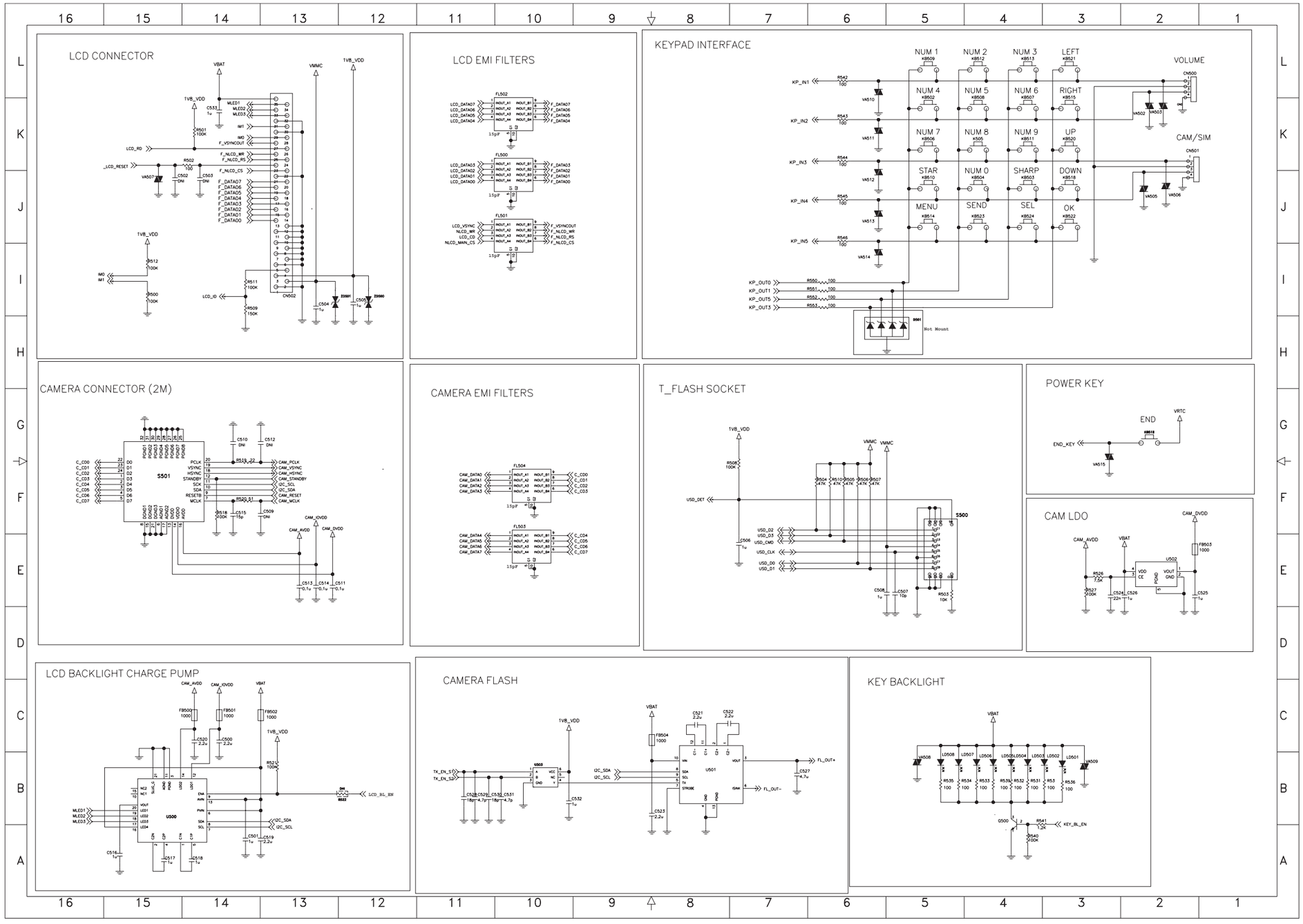


MODE	VLOGIC	TX_EN	BS1	BS2
STANDBY	LOW	X	X	X
EGSM_RX	HIGH	LOW	LOW	LOW
GSM850_RX	HIGH	LOW	LOW	HIGH
PCS_RX	HIGH	LOW	HIGH	HIGH
DCS_RX	HIGH	LOW	HIGH	LOW
LB_TX	HIGH	HIGH	LOW	X
HB_TX	HIGH	HIGH	HIGH	X

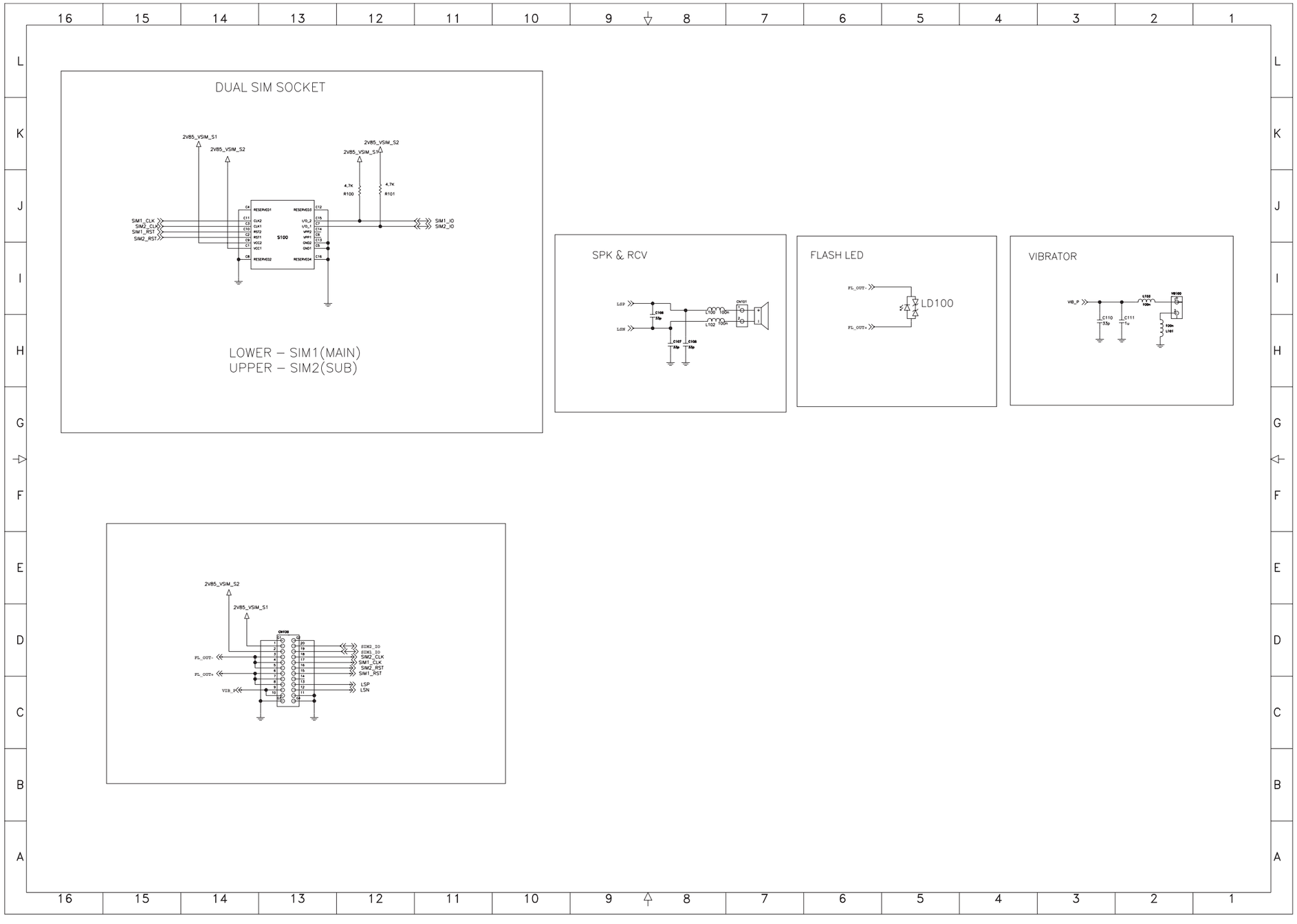
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



8. BGA PIN MAP

8.1 BGA IC pin check (U102) - SIM 1

▪ **Ball Diagram (Top View), PMB8810(A-GOLDRADIO+)**

SIM 1

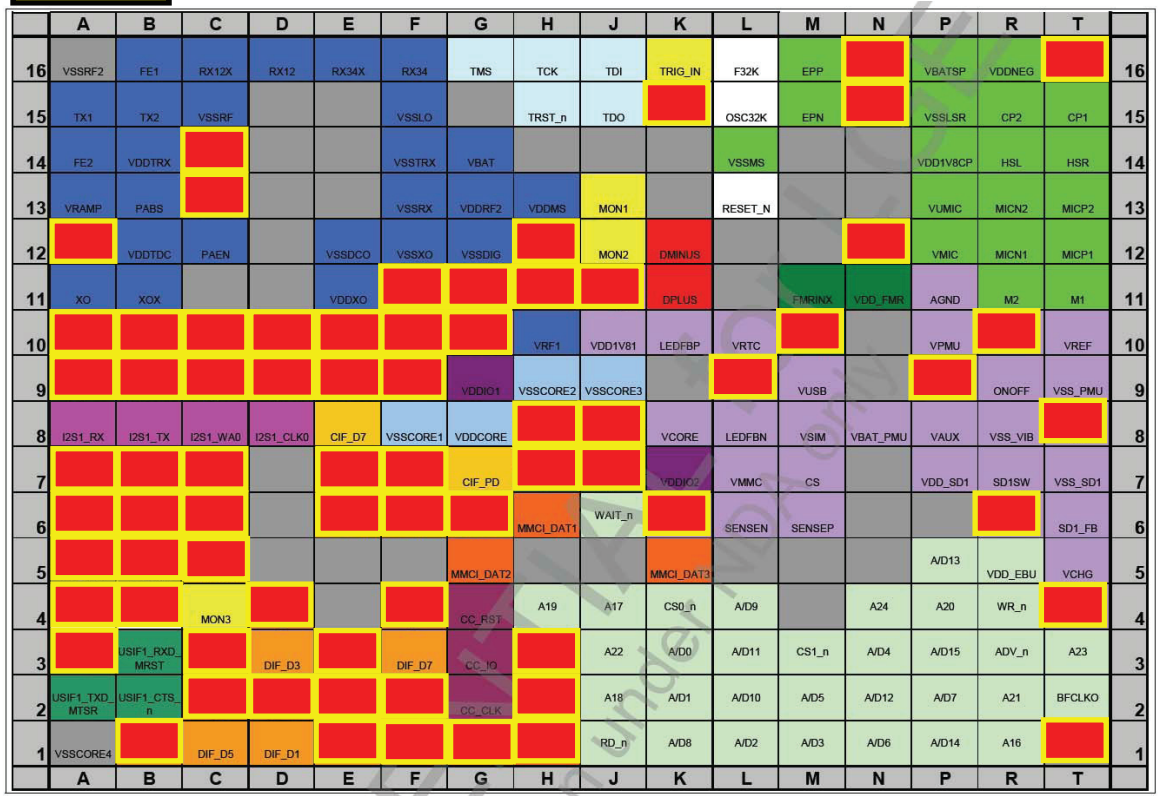
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	
16	VSSRF2	FE1	RX12X	RX12	RX34X	RX34	TMS	TCK	TDI	TRIG_IN	F32K	EPP		VBATSP	VDDNEG		16
15	TX1	TX2	VSSRF			VSSLO		TRST_n	TDO	FSYS_EN	OSC32K	EPN		VSSLSR	CP2	CP1	15
14	FE2	VDDTRX				VSSTRX	VBAT				VSSMS			VDD1V8CP	HSL	HSR	14
13	VRAMP	PABS				VSSRX	VDDRF2	VDDMS	MON1		RESET_N			VUMIC	MICN2	MICP2	13
12		VDDTDC	PAEN		VSSDCO	VSSXO	VSSDIG	SWIF_TXRX	MON2	DMINUS			M0	VMIC	MICN1	MICP1	12
11	XO	XOX			VDDXO		FSYS1	DIGuP1	DIGuP_CLK	DPLUS		FMRINX	VDD_FMR	AGND	M2	M1	11
10	KP_IN1	KP_IN2	KP_IN3	KP_IN4	KP_IN5	KP_OUT5	DIGuP2	VRF1	VDD1V81	LEDFBP	VRTC	FMRIN		VPMU	ACD	VREF	10
9	KP_IN0	KP_OUT1	KP_OUT2	KP_OUT0	KP_OUT3		VDDIO1	VSSCORE2	VSSCORE3			VUSB			ONOFF	VSS_PMU	9
8	I2S1_RX	I2S1_TX	I2S1_WA0	I2S1_CLK0	CIF_D7	VSSCORE1	VDDCORE	USIF2_TXD_MTSR	USIF2_CTS_n	VCORE	LEDFBN	VSIM	VBAT_PMU	VAUX	VSS_VIB	VIB	8
7	CIF_D3	CIF_D4	CIF_D6		CIF_VSYNC	CIF_HSYNC	CIF_PD	USIF2_RTS_n	USIF2_RXD_MRST	VDDIO2	VMMC	CS		VDD_SD1	SD1SW	VSS_SD1	7
6	CIF_D0	CIF_D1	CIF_D5		CIF_RESET	CLKOUT2	CIF_PCLK	MMCI_DAT1	WAIT_n	VSHNT	SENSEN	SENSEP				SD1_FB	6
5	I2C_SDA	I2C_SCL	CIF_D2				MMCI_DAT2			MMCI_DAT3				A/D13	VDD_EBU	VCHG	5
4	CLKOUT0	T2IN	MON3	DIF_RD		DIF_CS1	CC_RST	A19	A17	CS0_n	A/D9		A24	A20	WR_n	VDDCHG	4
3	USIF1_RTS_n	USIF1_RXD_MRST	DIF_WR	DIF_D3	DIF_CD	DIF_D7	CC_IO	MMCI_DAT0	A22	A/D0	A/D11	CS1_n	A/D4	A/D15	ADV_n	A23	3
2	USIF1_TXD_MTSR	USIF1_CTS_n	DIF_D4	DIF_RESET	DIF_D8	DIF_D2	CC_CLK	MMCI_CLK	A18	A/D1	A/D10	A/D5	A/D12	A/D7	A21	BFCLKO	2
1	VSSCORE4	DIF_D6	DIF_D5	DIF_D1	DIF_D0	DIF_HD	DIF_VD	MMCI_CMD	RD_n	A/D8	A/D2	A/D3	A/D6	A/D14	A16		1
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	

: not in use

8.2 BGA IC pin check (U402) - SIM 2

▪ **Ball Diagram (Top View), PMB8810(A-GOLDRADIO+)**

SIM 2



	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	
16	VSSRF2	FE1	RX12X	RX12	RX34X	RX34	TMS	TCK	TDI	TRIG_IN	F32K	EPP		VBATSP	VDDNEG		16
15	TX1	TX2	VSSRF			VSSLO		TRST_n	TDO		OSC32K	EPN		VSSLSR	CP2	CP1	15
14	FE2	VDDTRX				VSSTRX	VBAT				VSSMS			VDD1V8CP	HSL	HSR	14
13	VRAMP	PABS				VSSRX	VDDRF2	VDDMS	MON1		RESET_N			VUMIC	MICN2	MICP2	13
12		VDDTDC	PAEN		VSSDCO	VSSXO	VSSDIG		MON2	DMINUS				VMIC	MICN1	MICP1	12
11	XO	XOX			VDDXO					DPLUS		FMRINX	VDD_FMR	AGND	M2	M1	11
10								VRF1	VDD1V81	LEDFBP	VRTC			VPMU		VREF	10
9							VDDIO1	VSSCORE2	VSSCORE3			VUSB			ONOFF	VSS_PMU	9
8	I2S1_RX	I2S1_TX	I2S1_WA0	I2S1_CLK0	CIF_D7	VSSCORE1	VDDCORE			VCORE	LEDFBN	VSIM	VBAT_PMU	VAUX	VSS_VIB		8
7							CIF_PD			VDDIO2	VMMC	CS		VDD_SD1	SD1SW	VSS_SD1	7
6								MMCI_DAT1	WAIT_n		SENSEN	SENSEP				SD1_FB	6
5							MMCI_DAT2			MMCI_DAT3				A/D13	VDD_EBU	VCHG	5
4			MON3				CC_RST	A19	A17	CS0_n	A/D9		A24	A20	WR_n		4
3		USIF1_RXD_MRST		DIF_D3		DIF_D7	CC_IO		A22	A/D0	A/D11	CS1_n	A/D4	A/D15	ADV_n	A23	3
2	USIF1_TXD_MTSR	USIF1_CTS_n					CC_CLK		A18	A/D1	A/D10	A/D5	A/D12	A/D7	A21	BFCLKO	2
1	VSSCORE4		DIF_D5	DIF_D1					RD_n	A/D8	A/D2	A/D3	A/D6	A/D14	A16		1
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	

: not in use

8.3 BGA IC pin check (U100) - SIM 1

▪ **Ball Diagram (Top View), PF38F6066M0Y3DE**

SIM 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A															A
B															B
C				F-CE2#, A25			P-LB#	P-UB#			A24				C
D			WAIT	A21	VSS	CLK	VCC	WE#	F-VPP	A19	A17	A22			D
E			VCCQ	A16	A20	ADV#	A23	F-RST#	F-WP#, P-CE2#	A18	F-CE#	VSS			E
F			VSS	A/DQ7	A/DQ6	A/DQ13	A/DQ12	A/DQ3	A/DQ2	A/DQ9	A/DQ8	OE#			F
G			A/DQ15	A/DQ14	VSS	A/DQ5	A/DQ4	A/DQ11	A/DQ10	VCCQ	A/DQ1	A/DQ0			G
H				VCC			P-CE1#	P-CRE			F-DPD				H
J															J
K															K
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

Top View, Ball Side Down
(0.5mm Ball Pitch, 56 Balls)

: not in use

8.4 BGA IC pin check (U401) - SIM 2

▪ **Ball Diagram (Top View), PF38F3050M0Y3DE**

SIM 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A														
B														
C				F2-CE#			R-LB#	R-UB#			A24			
D			WAIT#	A21	VSS	CLK	VCC	WE#	VPP	A19	A17	A22		
E			VCCQ	A16	A20	ADV#	A23	F-RST#	F-WP#	A18	F1-CE#	VSS		
F			VSS	ADQ7	ADQ6	ADQ13	ADQ12	ADQ3	ADQ2	ADQ9	ADQ8	OE#		
G			ADQ15	ADQ14	VSS	ADQ5	ADQ4	ADQ11	ADQ10	VCCQ	ADQ1	ADQ0		
H				VCCQ			R-CS#	P-CRE, P-MODE#			F-DPD			
J														
K														

56 Ball NOR / PSRAM AD-Mux Ballout 0.5 mm pitch

NOR / PSRAM Upper Address

NOR / PSRAM Address / Data Mux (AD-Mux)

: not in use

8.5 BGA IC pin check (U400) – Dual Port SRAM

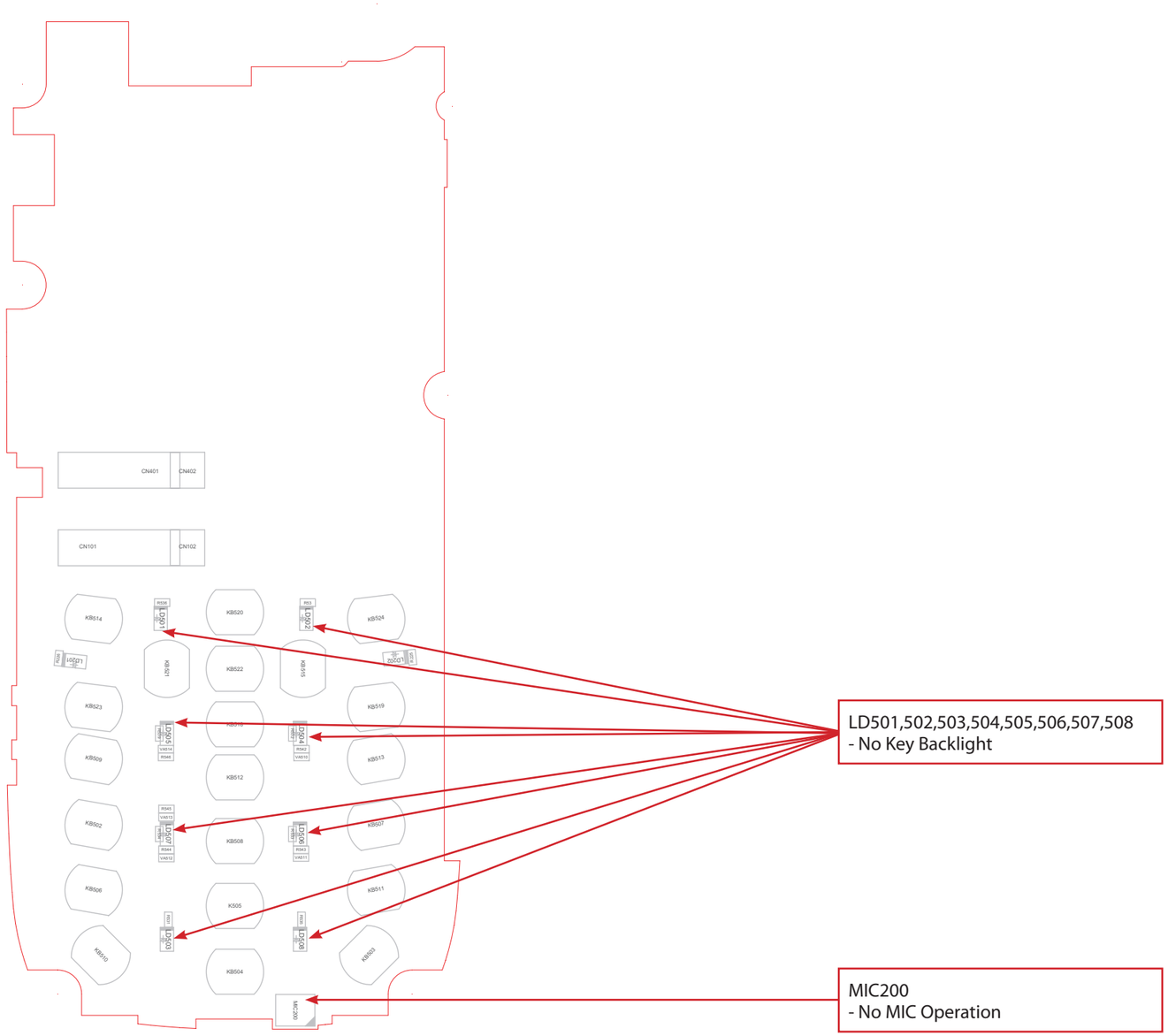
▪ **Ball Diagram (Top View), CYDMX128B16-65BVXI**

DPRAM

	1	2	3	4	5	6	7	8	9	10	
A				UB#R	VSS	ADV#R	I/OR15	I/OR12	I/OR10	VSS	A
B					CE#R	WE#R	OE#R	VDDIOR	I/OR9	I/OR6	B
C					LB#R		I/OR14	I/OR11	I/OR7	VSS	C
D				INT#R			I/OR13	I/OR8	I/OR5	I/O2R	D
E	VSS			INT#L	VSS	VSS	I/OR4	VDDIOR	I/OR1	VSS	E
F	SFEN#				VCC	VSS	I/OR3	I/OR0	I/OL15	VDDIOL	F
G					OE#L	I/OL3	I/OL11	I/OL12	I/OL14	I/OL13	G
H				LB#L	CE#L	I/OL1	VDDIOL	MSEL		I/OL10	H
J					VCC	VSS	I/OL4	I/OL6	I/OL8	I/OL9	J
K				UB#L	ADV#L	WE#L	I/OL0	I/OL2	I/OL5	I/OL7	K
	1	2	3	4	5	6	7	8	9	10	

: **not in use**

9. PCB LAYOUT



GX300_MAIN_SPFY0222401-1.1 TOP

S501(Camera connector)
-No Camera

BAT100(Backup Battery)
-No service

CN201(B to B Connector)
-No Speaker & Vibrator
-No SIM Operation

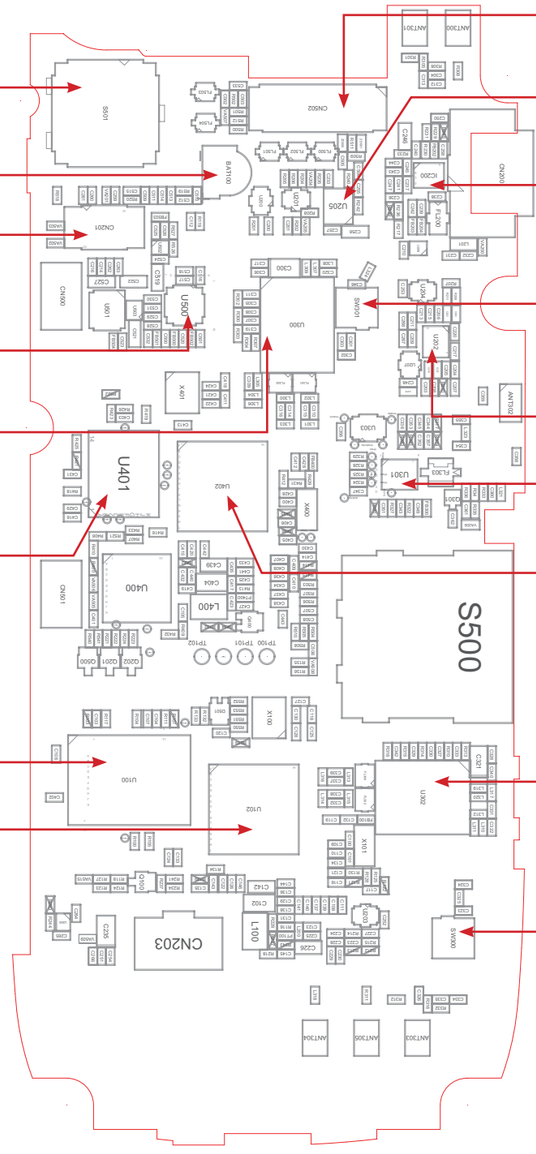
U500(Charge Pump)
-No LCD Backlight

U300(Sub Tx Module)
- Can't make a call
- Tx Low power
- Not good BER
- No Service

S501(Camera connector)
-No Camera

U100(Main Memory)
-No booting

U102 (Main BB)
-No operating almost all functions



CN502(LCD Connector)
- No LCD Display

U205(Charging IC)
-No Charging

IC200(MUIC)
-No Earphone
-No Download

SW301(mobile switch)
- Can't make a call
-Tx Low power
- Not good BER
- No Service

U202(Audio AMP)
-The Audio working bad

U301(Bluetooth Chip)
-The Bluetooth working bad

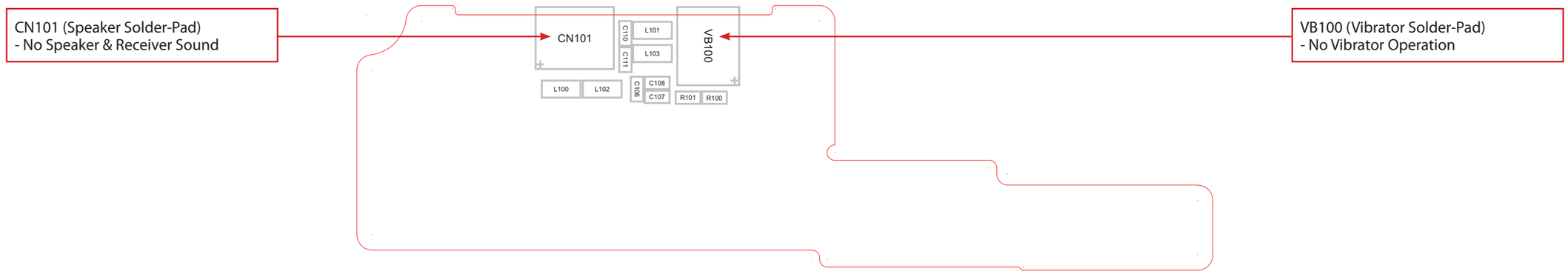
U402 (Sub BB)
-No operating almost all functions

U302(Main Tx Module)
- Can't make a call
- Tx Low power
- Not good BER
- No Service

SW300(mobile switch)
- Can't make a call
-Tx Low power
- Not good BER
- No Service

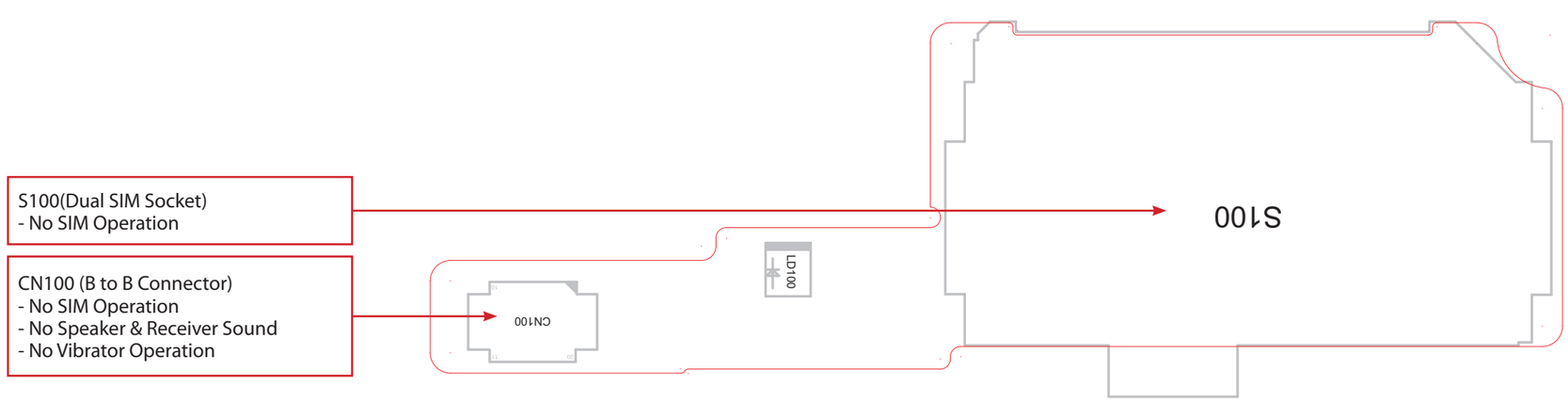
GX300_MAIN_SPFY0222401-1.1 BOT

9. PCB LAYOUT



GX300_F_SUB_SPCY0222201_1.0_TOP

9. PCB LAYOUT



GX300_F_SUB_SPCY0222201_1.0_BOT

10. STAND ALONE TEST

10.1 Introduction

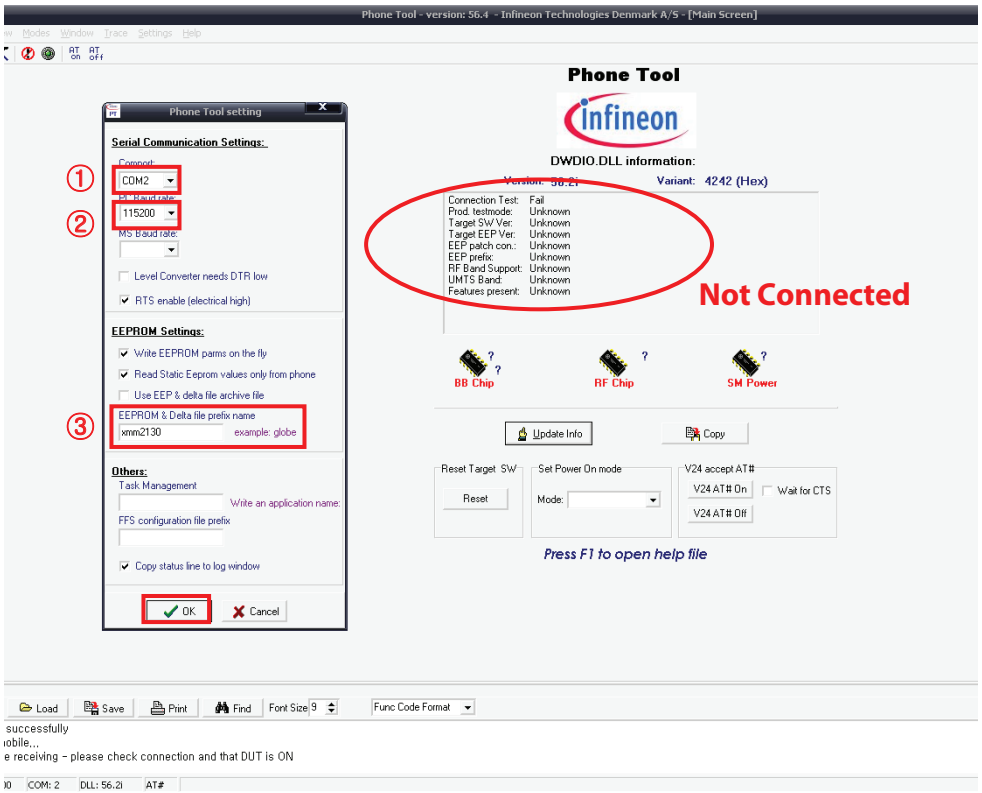
This manual explains how to examine the status of RX and TX of the model.

A. Tx Test
TX test - this is to see if the transmitter of the phones is activating normally.

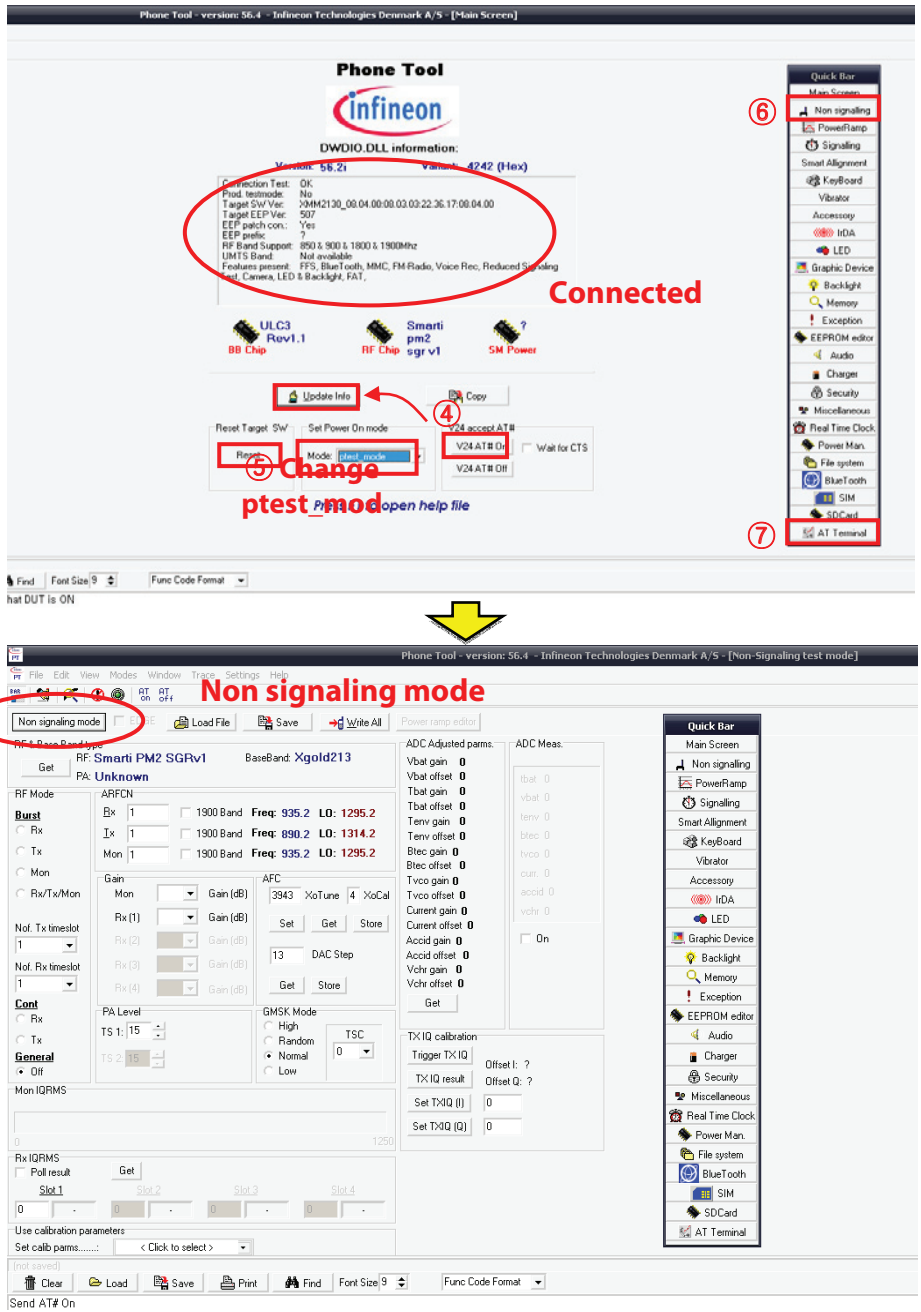
B. Rx Test
RX test - this is to see if the receiver of the phones is activating normally.

10.2 Setting Method

1. Set COM Port
2. Check PC Baud Rate
3. Confirm EEPROM & Delta file prefix name, and then click “OK”.

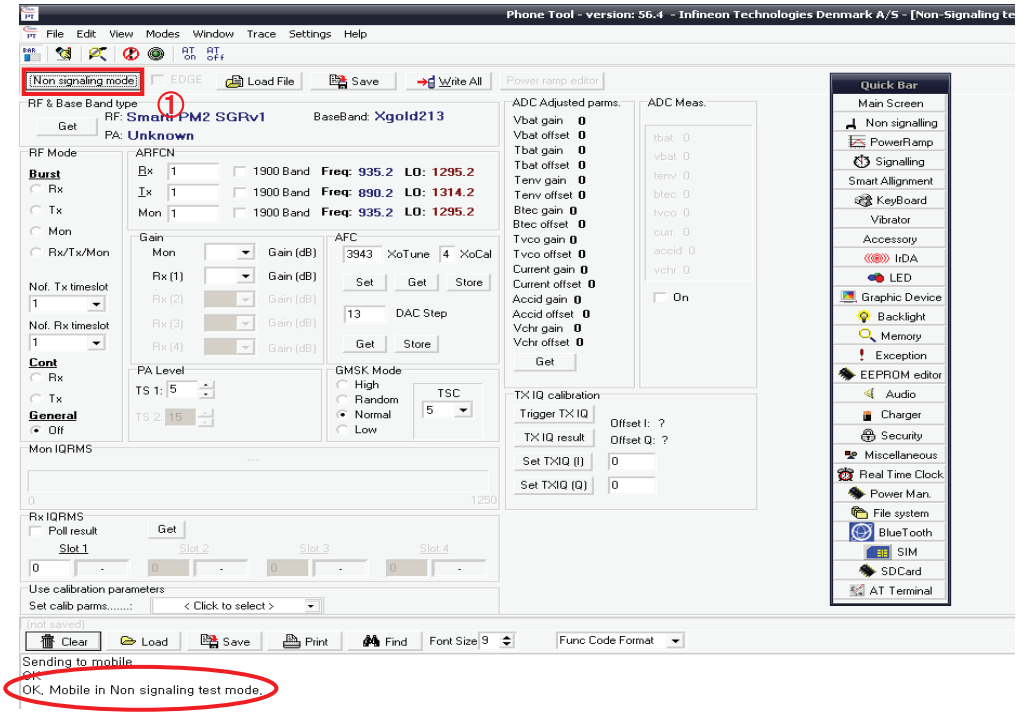


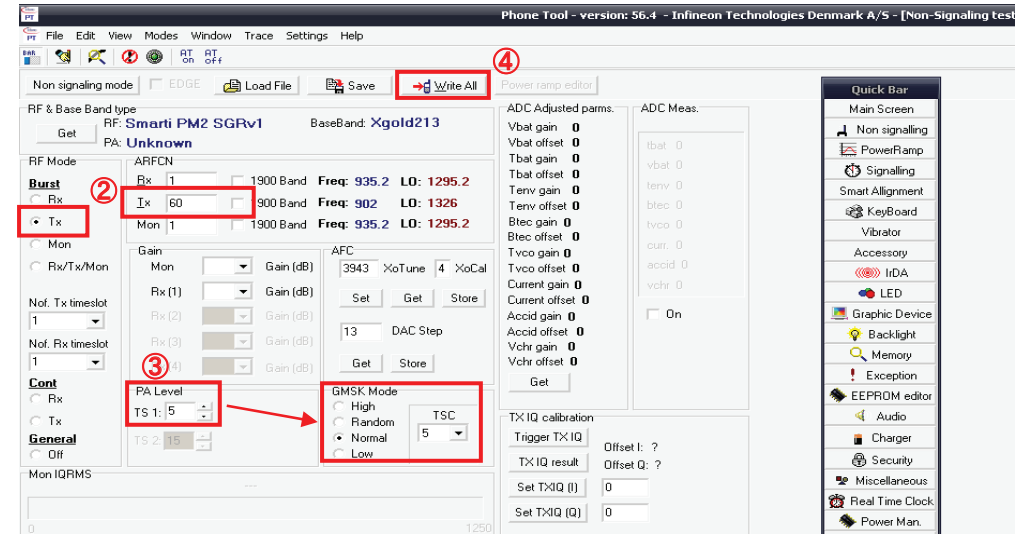
4. For communicating Phone and Test-Program, click “V24 AT# On” and “Update Info” one by one.
5. For the purpose of the Standalone Test, Change the Phone to “ptest mode” and then Click the “Reset” bar.
6. Select “Non signaling” in the Quick Bar menu. Then Standalone Test setup is finished.
7. If you want to test the SIM2 equally, click the “AT Terminal” and then enter “AT%uartpath=1”.
   Then retry 4~6 step again. (uartpath=0 → SIM1, uartpath=1 → SIM2)



10.3 Tx Test

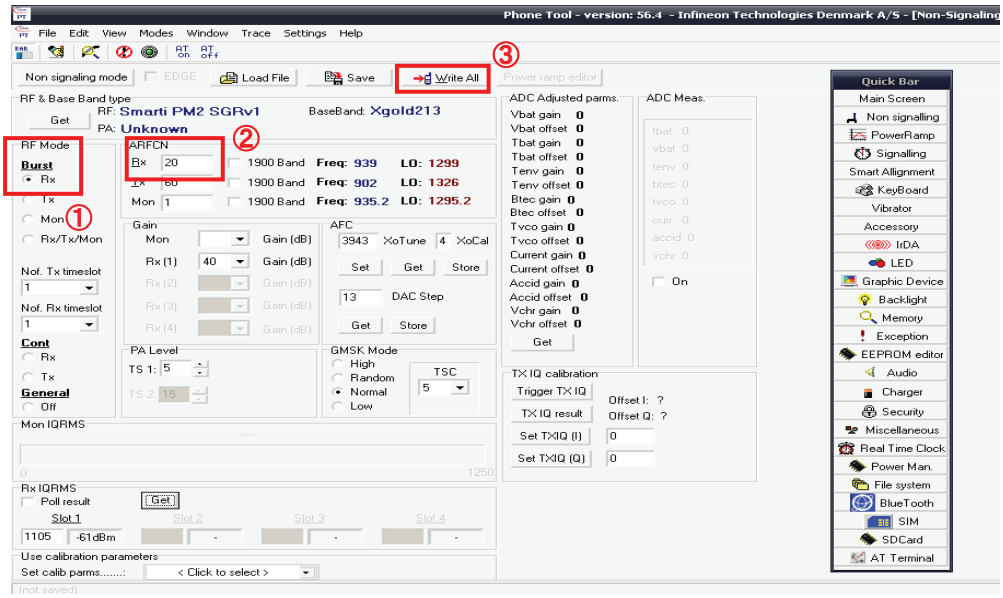
1. “Non signaling mode” bar and then confirm “OK” text in the command line.
2. Select “Tx” in the RF mode menu and put the number of TX Channel in the ARFCN.
3. Put the number of “PCL” in the PA Level menu.
4. Finally, Click “Write All” bar and try the efficiency test of Phone.



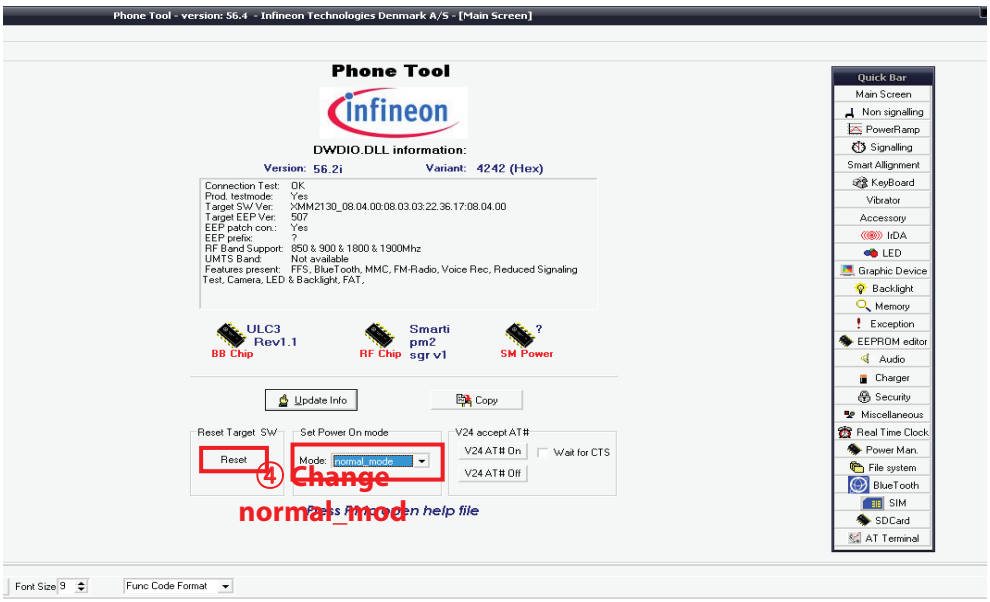


10.4 Rx Test

1. Select “Rx” in the RF mode menu.
2. Put the number of RX Channel in the ARFCN.
3. Finally, Click “Write All” bar and try the efficiency test of Phone.



4. The Phone must be changed “normal mode” after finishing Test.
   Change the Phone to “normal mode” and then Click the “Reset” bar.

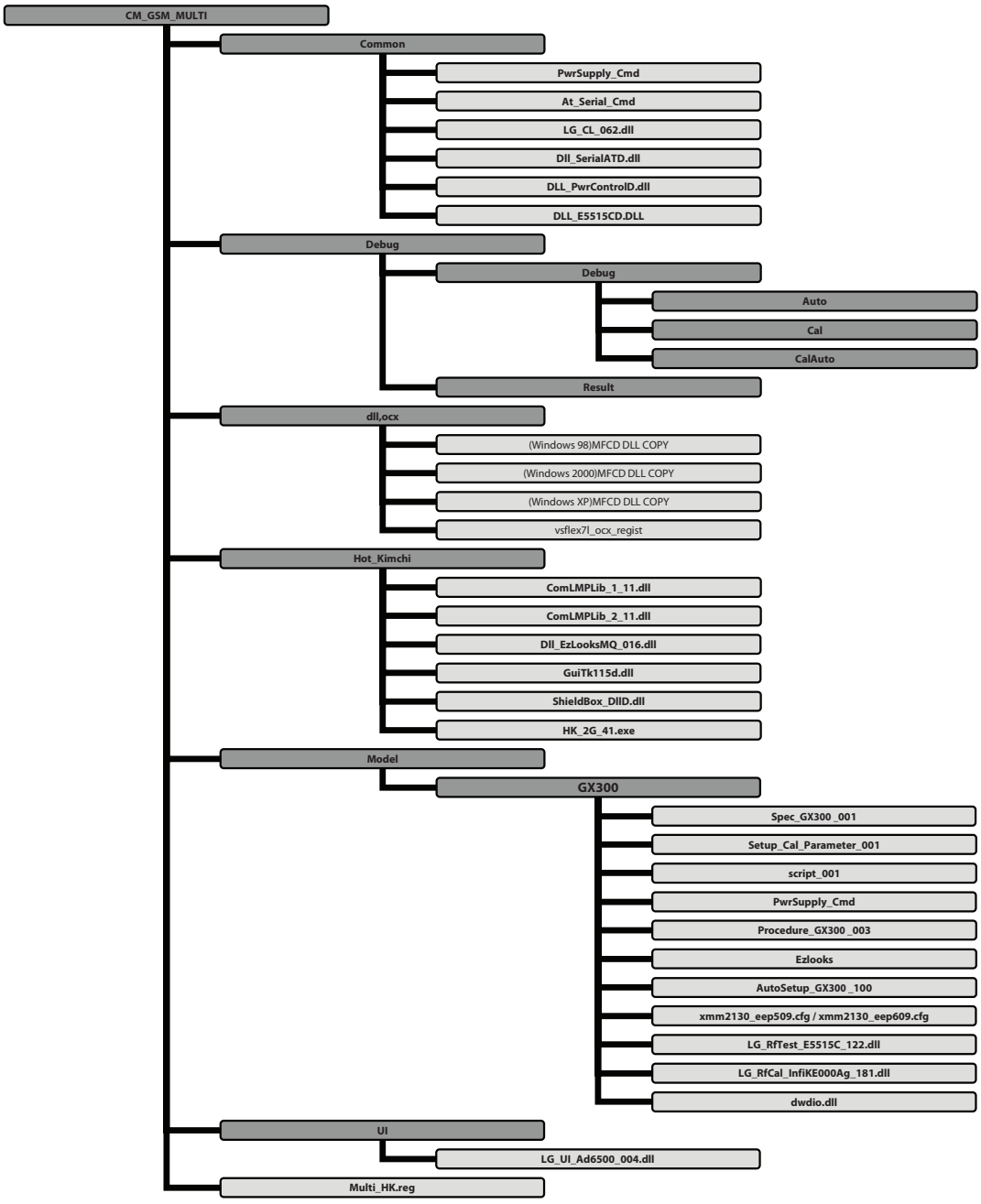


11. AUTO CALIBRATION

11.1 Overview

Auto-cal (Auto Calibration) is the PC side Calibration tool that perform Tx, Rx and Battery Calibration with Agilent 8960(GSM call setting instrument) and Tektronix PS2521G(Programmable Power supply).
Auto-cal generates calibration data by communicating with phone and measuring equipment then write it into calibration data block of flash memory in GSM phone.

11.2 Configuration of HotKimchi



11.3 Description of Basic File

11.3. 1 Common

-. **LG_CL_062.dll** : Common logic dll, Module In Charge of Reading PID & S/W Version, Booting.
-. **Dll_SerialATD.dll** : Serial Communication Module From Phone by AT Command.
-. **DLL_PwrControlD.dll** : Communication Module From Power supply.
-. **DLL_E5515CD.DLL** : Communication Module From Agilent 8960(Test Set).
-. **At_Serial_Cmd.xml** : Definition File of AT Command.
-. **PwrSupply_Cmd.xml** : Definition File of Power supply command.

11.3.2 Debug

-. **Debug** - Cal : Result File of Calibration.
Auto : Result File of Auto Test.
CalAuto : Result File of Cal & Auto Test.

11.3.3 dll, ocx

-. **vsflex7l_ocx_regist :** Registration File for System use

-. **(Windows XXX)MFCD DLL :** Registration File for System use

11.3.4 HotKimchi

-. **HK_2G_41.exe** : Execute File, HK_2G_XX → XX is File Version.
-. **ComLMPLib_1_11.dll** : Communication Module With PLC or Shield Box In Automation Rack.
Support to J&S Shield Box and Tescom TC-5981A.
-. **ComLMPLib_2_11.dll** : Communication Module With PLC or Shield Box In Automation Rack.
Support to J&S Shield Box and Tescom TC-5981A.
-. **Dll_EzLooksMQ_016.dll** : Communication Module with ezTray Installed In Local PC.
-. **GuiTk115d.dll** : control library
-. **ShieldBox_DllD.dll** : Communication with Shield Box. Support to Tescom TC-5952B.

11.3.5 Model

-. **LG_RfCal_InfiKE000Ag_181.dll** : Main Module of Calibration
-. **LG_RfTest_E5515C_122.dll** : Main Module of Auto Test
-. **Xmm2130_eep509.cfg** : Cal Data Save binary Module. → eepXXX.cfg : main, eep(XXX+100).cfg : sub
ex) eep509.cfg : main, eep609.cfb : sub
-. **AutoSetup_GX300 _100.xml** : RF TEST Setup Module.
-. **Ezlooks.xml** : Calibration ezLooks Item & Cal Spec Definition Module.
-. **Procedure_GX300 _003.xml** : RF TEST Procedure Definition Module.
-. **Script_001.xml** : RF TEST Setup & calibration Setup Module.
-. **Spec_GX300 _001.xml** : Definition Module of Auto Test Spec
-. **Setup_Cal_Parameter_001.xml** : Calibration Definition Module.

11.3.6 UI

-. **LG_UI_Ad6500_002.dll** : ADI Model UI Dll.

11.3.7 Multi_HK

-. Registration File For System Setting.

11.4 Auto Calibration setup

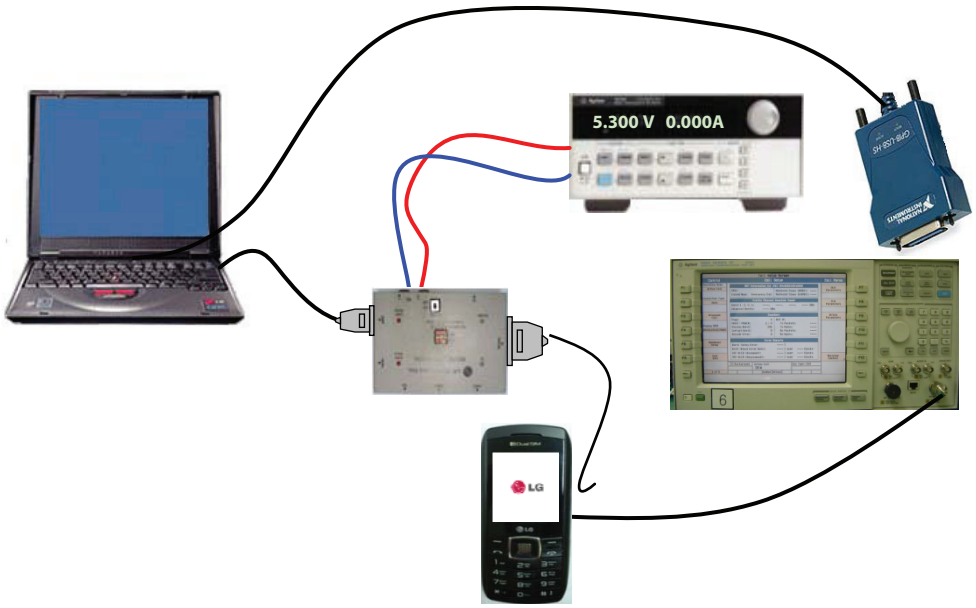
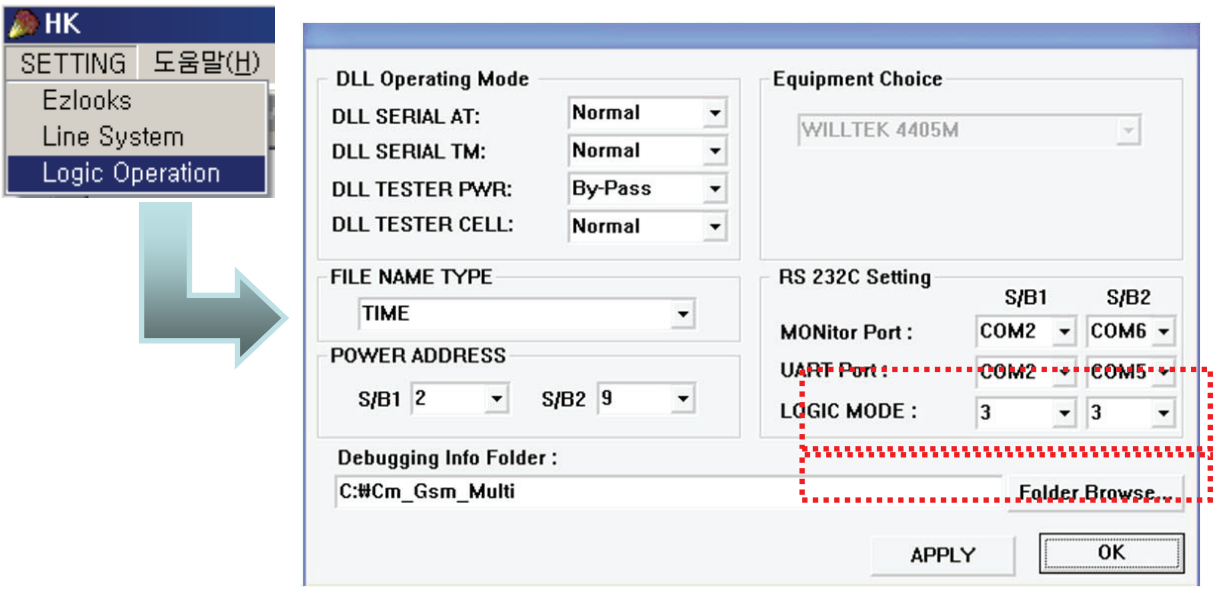


Figure 13.4.1 Equipment setup

1. Connect as Fig 13.4.1(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general. GPIB-USB-HS cable is connected between HP8960 and PC.)
2. Set the Power Supply 5.3V
3. Set the 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

11.5 Procedure

1. Copy the file to C:\Cm_Gsm_Multi
2. Copy the files of((Windows XXX)MFCD DLL, vsflex7l_ocx_regist to C:\Cm_Gsm_Multi\dll,ocx
3. Select MFCD DLL of your computer OS
4. Click on "vsflex7l_ocx_regist"
5. Click on "Multi_HK reg"
6. Connect as Fig 13.4.1.
7. Run *HK_2G_41.exe* to start calibration.
8. Click " Logic Operation" of "SETTING" menu bar



9. Set PORT (using RS232 cable) that PC can communicate with the phone

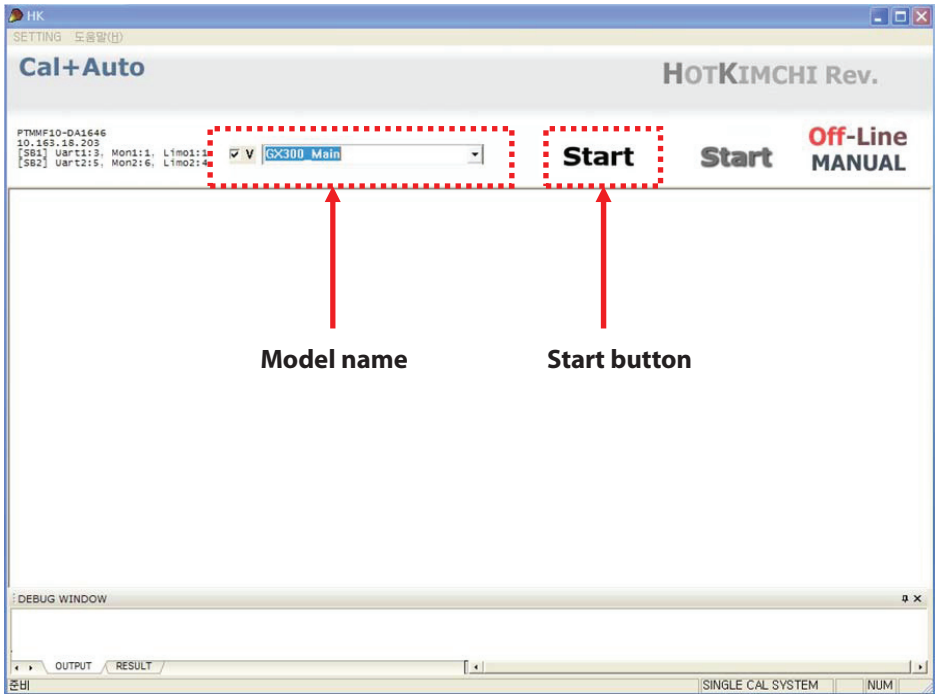
10. Select " LOGIC MODE" that you want

Logic mode: 1-> Calibration only

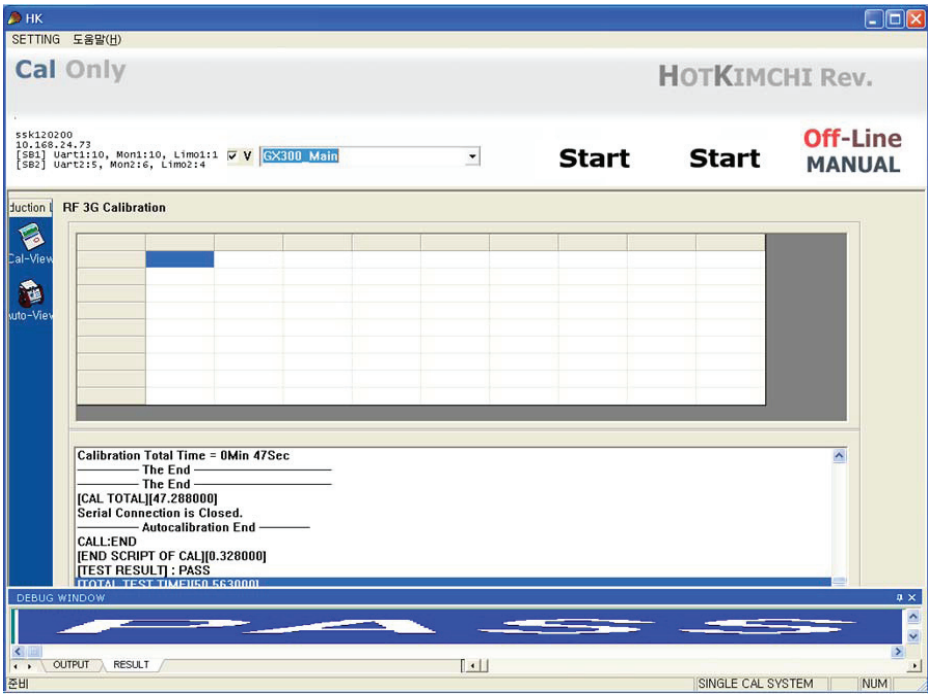
2-> Auto test only

3-> Cal & Auto

11. Select the model name “GX300_Main” or “GX300_Sub”



12. Click “start” button



11.6 AGC

This procedure is for Rx calibration.
In this procedure, We can get RSSI correction value. Set band EGSM and press Start button the result window will show correction values per every power level and gain code and the same measure is performed per every frequency.

11.7 APC

This procedure is for Tx calibration.
In this procedure you can get proper scale factor value and measured power level.

11.8 ADC

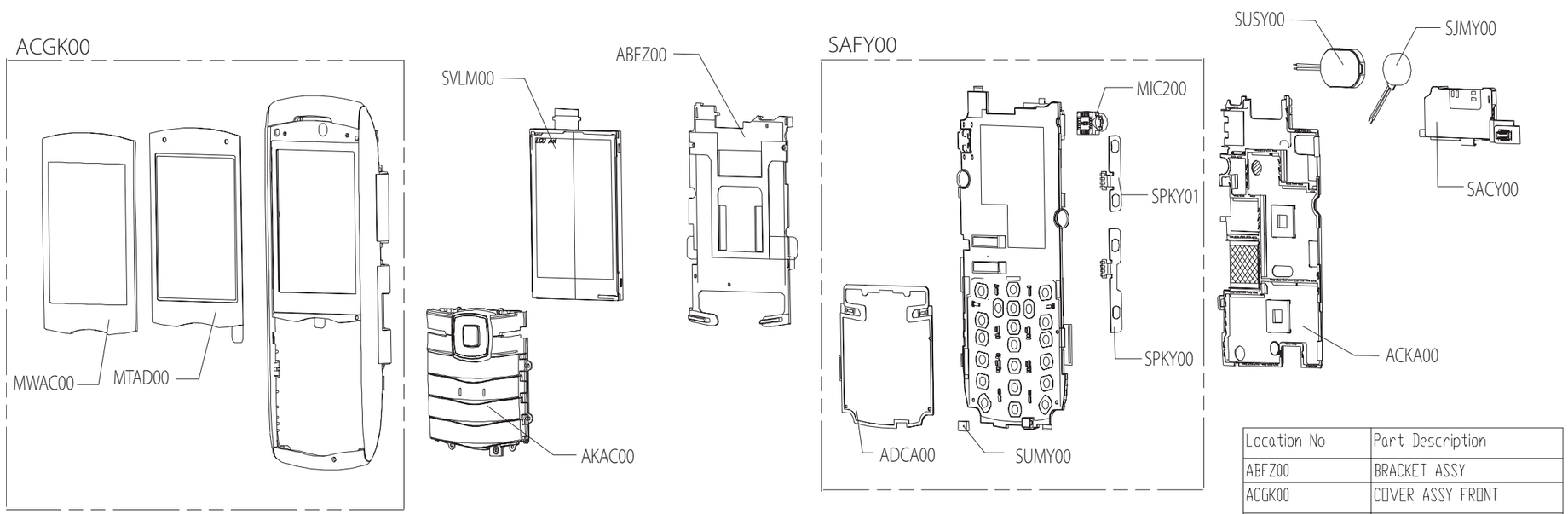
This procedure is for battery calibration.
You can get main Battery Config Table and temperature Config Table will be reset.

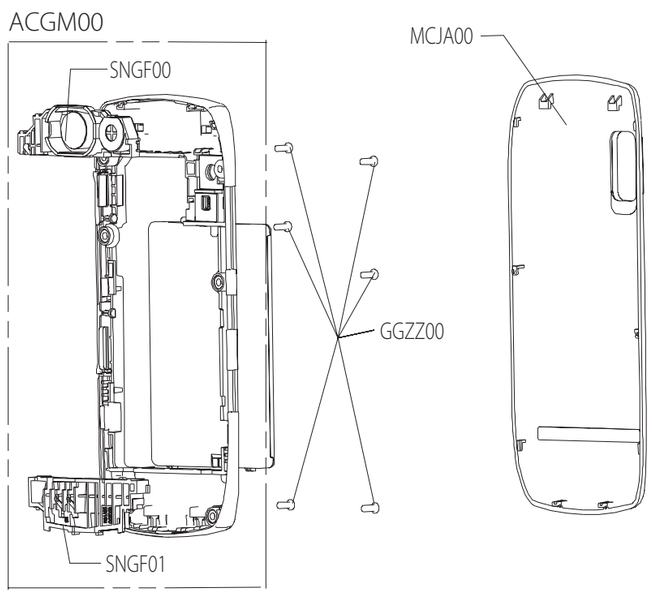
11.9 Target Power

BAND	Description	Low	Middle	High
EGSM 900	Channel	975	37	124
	Frequency	880.2 MHz	897.4 MHz	914.8 MHz
	Max power	33.0 dBm	33.0 dBm	33.0 dBm
DCS1800	Channel	512	699	885
	Frequency	1710.2 MHz	1747.6 MHz	1784.8 MHz
	Max power	30.0 dBm	30.0 dBm	30.0 dBm
PCS 1900	Channel	512	661	810
	Frequency	1850.2 MHz	1880 MHz	1909.8 MHz
	Max power	30.0 dBm	30.0 dBm	30.0 dBm

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW





Location No	Part Description
ABFZ00	BRACKET ASSY
ACGK00	COVER ASSY FRONT
MTAD00	TAPE WINDOW
MWAC00	WINDOW LCD
ACGM00	COVER ASSY REAR
SNGF00	ANTENNA GSM FIXED
SNGF01	ANTENNA GSM FIXED
ACKA00	CAN ASSY SHIELD
AKAC00	KEYPAD ASSY MAIN
GGZZ00	SCREW TAPPING
SACY00	PCB ASSY FLEXIBLE
SAFY00	PCB ASSY MAIN
ADCA00	DOME ASSY METAL
SPKY00	PCB SIDEKEY
SPKY01	PCB SIDEKEY
MIC200	CAMERA
SUMY00	MICROPHONE
SJMY00	VIBRATOR MOTOR
SUSY00	SPEAKER
SVLM00	LCD MODULE
MCJA00	COVER,BATTERY

12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		GSM,BAR/FILP	TGSM0085801		BLACK	
2	AAAY	ADDITION	AAAY0486903		BLACK	
3	AMBA00	MANUAL ASSY,OPERATION	AMBA0181302	GX300 manual assy for BAL	WITHOUT COLOR	
4	MCDF	CARD,WARRANTY	MCDF0011601	PRINTING, (empty), , , , ,	WITHOUT COLOR	
3	MCJA	COVER,BATTERY	MCJA0108101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
2	APAY00	PACKAGE	APAY0146501	GX300 BAL(EU1/STD UB/Peel/1200ea)	WITHOUT COLOR	
3	APLY00	PALLET ASSY	APLY0003901	EU1 TYPE_Body(SW)+Cap(EU)+AL_1200EA	WITHOUT COLOR	
4	MBEC00	BOX,CARTON	MBEC0003601	BOX, TW, , , , ,	WITHOUT COLOR	
4	MCCL00	CAP,BOX	MCCL0002501	BOX, TW, , , , ,	WITHOUT COLOR	
4	MPCY00	PALLET	MPCY0012403	COMPLEX, (empty), , , , ,	DARK BLUE	
3	MBAD00	BAG,VINYL(PE)	MBAD0005204	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
3	MBEE00	BOX,MASTER	MBEE0061001	BOX, TW, , 307, 170, 251, 1 COLOR	WITHOUT COLOR	
3	MBEF00	BOX,UNIT	MBEF0146901	BOX, TW, , , , ,	WITHOUT COLOR	
3	MLAC00	LABEL,BARCODE	MLAC0003018	PRINTING, (empty), , , , ,	Without Color	
3	MLAJ00	LABEL,MASTER BOX	MLAJ0004402	LABEL,MASTER BOX(for CGR TDR 2VER. mbox_label)	Without Color	
3	MLAZ00	LABEL	MLAZ0050901	PRINTING, (empty), , , , ,	WITHOUT COLOR	
2	APEY00	PHONE	APEY0958201		BLACK	
3	ACGY	COVER ASSY,EMS	ACGY0032802		BLACK	
4	ABFZ00	BRACKET ASSY	ABFZ0021901		WITHOUT COLOR	
5	MBFZ00	BRACKET	MBFZ0046501	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MIAA00	INDICATOR,LED	MIAA0028801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MIAA01	INDICATOR,LED	MIAA0028901	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAZ00	TAPE	MTAZ0315101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAZ01	TAPE	MTAZ0315301	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
4	ACGK00	COVER ASSY,FRONT	ACGK0156301		BLACK	
5	MBFZ	BRACKET	MBFZ0046401	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MBJZ00	BUTTON	MBJZ0026601	MOLD, PC LUPOY SC-1004ML, , , , ,	BLACK	
5	MBJZ01	BUTTON	MBJZ0026501	MOLD, PC LUPOY SC-1004ML, , , , ,	BLACK	
5	MCJK00	COVER,FRONT	MCJK0124501	MOLD, PC LUPOY SC-1004ML, , , , ,	BLACK	
5	MPBG	PAD,LCD	MPBG0107201	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MPBJ00	PAD,MOTOR	MPBJ0074301	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MPBN00	PAD,SPEAKER	MPBN0086201	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAB00	TAPE,PROTECTION	MTAB0381901	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAB01	TAPE,PROTECTION	MTAB0381801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAD00	TAPE,WINDOW	MTAD0124401	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MWAC00	WINDOW,LCD	MWAC0140001	COMPLEX, (empty), , , , ,	BLACK	
4	ACGM00	COVER ASSY,REAR	ACGM0155501		WITHOUT COLOR	
5	MCCC00	CAP,EARPHONE JACK	MCCC0071701	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MCCG00	CAP,MULTIMEDIA CARD	MCCG0024601	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MCJN00	COVER,REAR	MCJN0118801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MDAY00	DECO	MDAY0063501	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MLEY00	LOCKER	MLEY0005101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MPBT00	PAD,CAMERA	MPBT0092101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MPBU00	PAD,CONNECTOR	MPBU0096101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MTAA00	TAPE,DECO	MTAA0217401	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MTAD00	TAPE,WINDOW	MTAD0124501	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MWAE00	WINDOW,CAMERA	MWAE0059401	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
4	ACKA00	CAN ASSY,SHIELD	ACKA0026401		WITHOUT COLOR	
5	MCBA00	CAN,SHIELD	MCBA0070101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MFEZ00	FRAME	MFEZ0030801	MOLD, PC LUPOY SC-1004A, , , , ,	WITHOUT COLOR	
5	MIDZ00	INSULATOR	MIDZ0254101	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MIDZ01	INSULATOR	MIDZ0254102		WITHOUT COLOR	
5	MLAB	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	WHITE	
5	MLAZ	LABEL	MLAZ0054801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
5	MPBZ00	PAD	MPBZ0310201	COMPLEX, (empty), , , , ,	BLACK	
5	MTAZ00	TAPE	MTAZ0322801	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
4	AKAC	KEYPAD ASSY,MAIN	AKAC0009803		BLACK	
4	GGZZ	SCREW TAPPING	GGZZ0004901	1.6 mm,4 mm,MSWR3(BK) ,N ,+ ,- , ,; ,BH ,+ ,2 ,1.6 ,4 ,SWCH ,FZB	WITHOUT COLOR	
4	MFBZ00	FILTER	MFBZ0018901	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
4	MGAZ00	GASKET	MGAZ0094501	COMPLEX, (empty), , , , ,	GOLD	
4	MGAZ01	GASKET	MGAZ0098201	COMPLEX, (empty), , , , ,	GOLD	
4	MIDZ00	INSULATOR	MIDZ0256701	COMPLEX, (empty), , , , ,	WITHOUT COLOR	
4	MIDZ01	INSULATOR	MIDZ0271301	COMPLEX, (empty), , , , ,	BLUE	
4	MIDZ02	INSULATOR	MIDZ0271401	COMPLEX, (empty), , , , ,	BLUE	
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	
4	MTAB	TAPE,PROTECTION	MTAB0418402		WITHOUT COLOR	
6	ADCA00	DOME ASSY,METAL	ADCA0111401		WITHOUT COLOR	
6	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	WITHOUT COLOR	

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	MLAA00	LABEL,APPROVAL	MLAA0062303	COMPLEX, (empty), , , , ,	WITHOUT COLOR	

12.2 Replacement Parts <Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	BFAA00	FILM,INMOLD	BFAA0120901	; ,BLACK , , ,	BLACK	
5	SNGF00	ANTENNA,GSM,FIXED	SNGF0058902	3.0 ,-5 dBd,, ,internal, , GSM900/1800/1900 ,; ,TRIPLE ,-5.0 ,50 ,3.0		
5	SNGF01	ANTENNA,GSM,FIXED	SNGF0059002	3.0 ,-5.0 dBd,, ,internal, GSM900/DCS/PCS ,; ,TRIPLE ,-5.0 ,50 ,3.0		
4	SACY00	PCB ASSY,FLEXIBLE	SACY0108401			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0098001			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0072701			
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0052901			
7	LD100	DIODE,LED,MODULE	EDLM0009501	white ,1 LED,2.0x1.6x0.7t ,R/TP ,		
7	S100	CONN,SOCKET	ENSY0025301	12 ,ETC , ,1.27 mm,28.5x15.5x3.9t, Tray Type Side Dual SIM socket		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0085601			
7	C106	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C107	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C108	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C110	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C111	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	L100	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
7	L101	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
7	L102	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
7	L103	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
7	R100	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
7	R101	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	SPCY00	PCB,FLEXIBLE	SPCY0222201	POLYI ,.3 mm,MULTI-3 , ,; , , , , , , , , ,		
4	SAFY	PCB ASSY,MAIN	SAFY0348202			
5	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0107301			
6	SPKY00	PCB,SIDEKEY	SPKY0085501	POLYI ,0.15 mm,DOUBLE , ,; , , , , , , , , ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	SPKY01	PCB,SIDEKEY	SPKY0085601	POLYI ,0.15 mm,DOUBLE , ,; , , , , , , , , ,		
6	SVCY00	CAMERA	SVCY0020301	CMOS ,MEGA ,2M FF SS-LSI(1/5"), 7x7x4.1,Socket		
5	SAFF	PCB ASSY,MAIN,SMT	SAFF0259202			
6	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0136601			
7	ANT302	ANTENNA,MOBILE,FIXED	SNMF0051501	5 ,-5 dB,Internal, BT, Chip, Pb Free ,; ,SINGLE , , ,		
7	BAT100	MODULE,ETC	SMZY0023501	3.8 Backup Capacitor 0.03F ,; ,Module Assembly		
7	C100	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C102	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP ,; ,0.85t ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C104	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C105	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C106	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C107	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C112	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C118	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
7	C119	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C120	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C121	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C122	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C123	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C124	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C125	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C126	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C127	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
7	C128	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
7	C129	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C130	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
7	C131	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
7	C132	CAP,CHIP,MAKER	ECZH0001210	470 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C133	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C134	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C135	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C136	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C137	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C138	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C139	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C140	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C141	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C142	CAP,CERAMIC,CHIP	ECCH0007803	10 uF,10V ,M ,X5R ,HD ,1608 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C143	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C144	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C145	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C146	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C200	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C201	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C202	CAP,CERAMIC,CHIP	ECCH0002001	0.1 uF,6.3V ,K ,B ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,.5 mm		
7	C203	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C204	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C205	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C206	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C207	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C208	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C209	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C210	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C211	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C213	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C214	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C215	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C216	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C217	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C218	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C219	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C220	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C221	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C222	CAP,CERAMIC,CHIP	ECCH0002001	0.1 uF,6.3V ,K ,B ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,.5 mm		
7	C223	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C224	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C225	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C226	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C227	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C228	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C229	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C230	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C231	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C232	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C233	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C235	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP ,; ,0.85t ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C236	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C237	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C238	CAP,CHIP,MAKER	ECZH0001108	6.8 nF,25V ,K ,X7R ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C239	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C240	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
7	C241	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C242	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C243	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C244	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
7	C245	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C246	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C247	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C248	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C250	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	C251	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C252	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C253	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C254	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C255	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C256	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
7	C257	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C258	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C259	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C260	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C261	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C262	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C263	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
7	C264	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C265	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C267	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C268	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C300	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP ,; ,0.85t ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C303	INDUCTOR,CHIP	ELCH0001403	1 nH,S ,1005 ,R/TP ,PBFREE		
7	C304	INDUCTOR,CHIP	ELCH0003839	22 nH,J ,1005 ,R/TP ,MLCI		
7	C305	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C306	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
7	C307	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C308	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C309	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C310	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C311	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C312	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C313	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	C314	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP ,; , ,0.5PF ,50V ,NP0 ,[empty] ,1005 ,R/TP , mm		
7	C315	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		
7	C316	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP ,; , ,0.5PF ,50V ,NP0 ,[empty] ,1005 ,R/TP , mm		
7	C317	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C319	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C320	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C321	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP ,; ,0.85t ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C322	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C325	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C327	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C328	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
7	C329	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C330	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C331	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C332	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		
7	C333	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C335	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	C336	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C337	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP ,; , ,0.5PF ,50V ,NP0 ,[empty] ,1005 ,R/TP , mm		
7	C338	CAP,CERAMIC,CHIP	ECCH0000105	4 pF,50V,C,NP0,TC,1005,R/TP		
7	C339	CAP,CERAMIC,CHIP	ECCH0001001	6.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP ,; , ,0.5PF ,50V ,NP0 ,[empty] ,1005 ,R/TP , mm		
7	C340	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C342	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C343	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C344	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C345	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C346	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C347	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
7	C349	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C351	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C352	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C353	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
7	C356	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C357	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C358	CAP,CERAMIC,CHIP	ECCH0000183	1.8 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C359	INDUCTOR,CHIP	ELCH0001403	1 nH,S ,1005 ,R/TP ,PBFREE		
7	C360	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C361	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C362	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C400	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C401	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C402	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C403	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C404	CAP,CHIP,MAKER	ECZH0025502	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP ,; ,0.85t ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C409	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C410	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C411	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
7	C412	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C413	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C414	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C415	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C416	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C417	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C418	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C419	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C420	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C421	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		

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Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C422	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
7	C423	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C424	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
7	C425	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
7	C426	CAP,CHIP,MAKER	ECZH0001210	470 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
7	C427	CAP,CHIP,MAKER	ECZH0001217	470 nF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C428	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
7	C429	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C430	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C431	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C432	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C433	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C434	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C435	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C436	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C437	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C438	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C439	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
7	C440	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C441	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C442	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C443	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C500	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C501	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C504	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C505	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C506	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C507	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C508	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C511	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C513	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C514	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
7	C515	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
7	C516	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C517	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C518	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C519	CAP,CERAMIC,CHIP	ECCH0005603	2.2 uF,10V ,K ,X5R ,TC ,1608 ,R/TP		
7	C520	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C521	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
7	C522	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
7	C523	CAP,CERAMIC,CHIP	ECCH0007804	2.2 uF,10V ,M ,X5R ,HD ,1005 ,R/TP ,; , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.5 mm		
7	C524	CAP,CHIP,MAKER	ECZH0001202	22 nF,16V ,Z ,Y5V ,HD ,1005 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty]		
7	C525	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C526	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C527	CAP,CERAMIC,CHIP	ECCH0007802	4.7 uF,10V ,M ,X5R ,TC ,1608 ,R/TP		
7	C528	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
7	C529	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C530	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
7	C531	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	C532	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C533	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN200	CONNECTOR,I/O	ENRY0010501	5 ,0.4 mm,ANGLE ,Gold ,SUS Plate, 0.75 PCB ,; ,5 ,0.40MM ,ANGLE ,RECEPTACLE ,DIP ,[empty] ,-		
7	CN201	CONNECTOR,BOARD TO BOARD	ENBY0053001			
7	CN203	CONNECTOR,ETC	ENZY0020402	3 ,2.5 mm,BOTTOM , ,		
7	CN502	CONNECTOR,FFC/FPC	ENQY0014901	35 ,0.3 mm,ETC , , ,; , ,0.30MM ,FPC ,STRAIGHT ,BOTH ,SMD ,R/TP ,[empty] ,		
7	D501	DIODE,TVS	EDTY0008101	SOT-553 ,5.9 V,0.38 W,R/TP ,		
7	FB100	FILTER,BEAD,CHIP	SFBH0007103	75 ohm,1005 ,CHIP BEAD, 300mA		
7	FB202	FILTER,BEAD,CHIP	SFBH0008105	1800 ohm,1005 ,Chip bead ,; ,1800ohm ,; ,[empty] ,R/TP		
7	FB203	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	FB204	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FB300	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
7	FB400	FILTER,BEAD,CHIP	SFBH0007103	75 ohm,1005 ,CHIP BEAD, 300mA		
7	FB500	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FB501	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FB502	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FB503	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FB504	FILTER,BEAD,CHIP	SFBH0000912	1000 ohm,1005 ,		
7	FL200	FILTER,EMI/POWER	SFEY0006501	SMD ,3 TERMINAL EMI FILTER		
7	FL300	FILTER,SAW,DUAL	SFSB0002301	881.5 MHz,25 MHz,2.6 dB,30 dB,942.5 MHz,35 MHz,30 dB,15 dB,1.8*1.4*0.68 ,SMD ,869M~894M,925M~960M,10p,B,150,LH,GSM850+EGSM Rx,DIP_OUT ,; ,881.5+942.5 ,1.8*1.4*0.68 ,SMD ,R/TP		
7	FL301	FILTER,SAW,DUAL	SFSB0002302	1842.5 MHz,75 MHz,3.5 dB,10 dB,1960 MHz,60 MHz,3.5 dB,10 dB,1.8*1.4*0.68 ,SMD ,1805M~1880M,1930M~1990M,10p,B,100,DCS+PCS Rx,LH,DIP_OUT ,; ,1842.5+1960 ,1.8*1.4*0.68 ,SMD ,R/TP		
7	FL302	FILTER,SAW,DUAL	SFSB0002302	1842.5 MHz,75 MHz,3.5 dB,10 dB,1960 MHz,60 MHz,3.5 dB,10 dB,1.8*1.4*0.68 ,SMD ,1805M~1880M,1930M~1990M,10p,B,100,DCS+PCS Rx,LH,DIP_OUT ,; ,1842.5+1960 ,1.8*1.4*0.68 ,SMD ,R/TP		
7	FL303	FILTER,DIELECTRIC	SFDY0003001	2450 MHz,2.0*1.25*1.05 ,SMD ,2400M~2500M, IL 1.6, 4pin, U-U, 50-50, BT BPF ,; ,BPF ,2450 ,100 ,SMD ,R/TP		
7	FL304	FILTER,SAW,DUAL	SFSB0002301	881.5 MHz,25 MHz,2.6 dB,30 dB,942.5 MHz,35 MHz,30 dB,15 dB,1.8*1.4*0.68 ,SMD ,869M~894M,925M~960M,10p,B,150,LH,GSM850+EGSM Rx,DIP_OUT ,; ,881.5+942.5 ,1.8*1.4*0.68 ,SMD ,R/TP		
7	FL500	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
7	FL501	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
7	FL502	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
7	FL503	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
7	FL504	FILTER,EMI/POWER	SFEY0011601	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm,15pF)		
7	IC200	IC	EUSY0405401	CSP ,20 ,R/TP ,MUIC ,; ,IC,Analog Multiplexer		
7	L100	INDUCTOR,SMD,POWER	ELCP0008003	3.3 uH,M ,2.5*2.0*1.0 ,R/TP ,Chip power		
7	L200	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
7	L201	INDUCTOR,CHIP	ELCH0001556	270 nH,J ,1608 ,R/TP ,		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	L301	INDUCTOR,CHIP	ELCH0004733	4.3 nH,S ,1005 ,R/TP ,Coil		
7	L302	INDUCTOR,CHIP	ELCH0003824	10 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
7	L303	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L304	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
7	L305	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L306	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L307	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
7	L308	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L309	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L310	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
7	L311	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L312	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L314	INDUCTOR,CHIP	ELCH0004733	4.3 nH,S ,1005 ,R/TP ,Coil		
7	L315	INDUCTOR,CHIP	ELCH0003824	10 nH,J ,1005 ,R/TP ,chip inductor,PBFREE		
7	L316	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L317	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
7	L318	INDUCTOR,CHIP	ELCH0003826	3.3 nH,S ,1005 ,R/TP ,chip		
7	L319	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L320	INDUCTOR,CHIP	ELCH0003832	2.2 nH,S ,1005 ,R/TP ,MLCI		
7	L321	INDUCTOR,CHIP	ELCH0005004	22 nH,J ,1005 ,R/TP ,		
7	L323	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	L324	INDUCTOR,CHIP	ELCH0003826	3.3 nH,S ,1005 ,R/TP ,chip		
7	L400	INDUCTOR,SMD,POWER	ELCP0008003	3.3 uH,M ,2.5*2.0*1.0 ,R/TP ,Chip power		
7	PT100	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
7	PT400	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
7	Q100	TR,BJT,NPN	EQBN0020501	ESM ,0.15 W,R/TP , ,; ,NPN ,5V ,60V ,50V ,150mA ,0.1uA MAX ,10 MIN 700 MAX ,100mW ,ESM ,R/TP ,3P		
7	Q201	TR,BJT,NPN	EQBN0020501	ESM ,0.15 W,R/TP , ,; ,NPN ,5V ,60V ,50V ,150mA ,0.1uA MAX ,10 MIN 700 MAX ,100mW ,ESM ,R/TP ,3P		
7	Q202	TR,BJT,NPN	EQBN0020501	ESM ,0.15 W,R/TP , ,; ,NPN ,5V ,60V ,50V ,150mA ,0.1uA MAX ,10 MIN 700 MAX ,100mW ,ESM ,R/TP ,3P		
7	Q301	TR,BJT,NPN	EQBN0019201	VSM ,0.1 W,R/TP ,1.2*1.2*0.5 Vcbo=20, Vceo=12, Vebo=2V, Ic=100mA		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	Q400	TR,BJT,ARRAY	EQBA0000602	TESV ,200 mW,R/TP ,EPITAXIAL PLANAR NPN/PNP TRANSISTOR		
7	Q500	TR,BJT,NPN	EQBN0020501	ESM ,0.15 W,R/TP , ,; ,NPN ,5V ,60V ,50V ,150mA ,0.1uA MAX ,10 MIN 700 MAX ,100mW ,ESM ,R/TP ,3P		
7	R100	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R102	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R103	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R104	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R105	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R107	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R111	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R116	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R117	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R118	RES,CHIP,MAKER	ERHZ0000484	470 ohm,1/16W ,J ,1005 ,R/TP		
7	R119	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
7	R123	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP		
7	R124	RES,CHIP,MAKER	ERHZ0000475	3900 ohm,1/16W ,J ,1005 ,R/TP		
7	R125	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R127	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R128	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R129	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R130	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
7	R132	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R133	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R134	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R135	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
7	R136	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R201	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R202	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
7	R203	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R204	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R205	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R207	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R209	RES,CHIP,MAKER	ERHZ0000240	20 ohm,1/16W ,F ,1005 ,R/TP		
7	R210	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R211	RES,CHIP,MAKER	ERHZ0000240	20 ohm,1/16W ,F ,1005 ,R/TP		
7	R212	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R213	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R214	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R215	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R218	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
7	R219	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R221	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
7	R222	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R223	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R224	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
7	R227	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R228	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R229	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R230	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R231	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R233	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
7	R234	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
7	R235	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R237	RES,CHIP	ERHY0000161	200K ohm,1/16W,F,1005,R/TP		
7	R239	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R240	RES,CHIP,MAKER	ERHZ0000278	3900 ohm,1/16W ,F ,1005 ,R/TP		
7	R241	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R242	RES,CHIP,MAKER	ERHZ0000513	820 ohm,1/16W ,J ,1005 ,R/TP		
7	R243	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R244	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R245	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R300	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R302	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R303	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R304	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R306	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	R307	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R308	INDUCTOR,CHIP	ELCH0003835	4.7 nH,S ,1005 ,R/TP ,MLCI		
7	R310	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
7	R311	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
7	R312	CAP,CHIP,MAKER	ECZH0000824	20 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	R313	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R314	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R315	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R317	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R318	RES,CHIP,MAKER	ERHZ0000408	110 ohm,1/16W ,J ,1005 ,R/TP , ,110 OHM ,5% ,1/16W ,1005 ,R/TP		
7	R319	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R320	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R321	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R322	RES,CHIP	ERHY0000128	15K ohm,1/16W,F,1005,R/TP		
7	R323	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R327	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R328	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R329	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R333	RES,CHIP,MAKER	ERHZ0003801	5.1 ohm,1/16W ,J ,1005 ,R/TP		
7	R335	RES,CHIP,MAKER	ERHZ0000531	270 ohm,1/16W ,J ,1005 ,R/TP		
7	R336	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
7	R34	RES,CHIP,MAKER	ERHZ0000449	24 Kohm,1/16W ,J ,1005 ,R/TP		
7	R400	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R406	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R407	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R409	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R410	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R412	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R413	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R414	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R415	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R416	RES,CHIP,MAKER	ERHZ0000499	5600 ohm,1/16W ,J ,1005 ,R/TP		
7	R418	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R419	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R421	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R422	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R423	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R425	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R426	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R429	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R431	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R432	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R433	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R434	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	R435	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R436	PCB ASSY,MAIN,PAD SHORT	SAFP0000501			
7	R500	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R501	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R502	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R503	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
7	R504	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
7	R505	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
7	R506	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
7	R507	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
7	R508	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R509	RES,CHIP,MAKER	ERHZ0000222	150 Kohm,1/16W ,F ,1005 ,R/TP		
7	R510	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
7	R511	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R512	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R518	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R519	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
7	R520	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
7	R521	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
7	R522	PCB ASSY,MAIN,PAD OPEN	SAFO0000501	0OHM_1005_DNI		
7	R526	RES,CHIP,MAKER	ERHZ0000533	7.5 Kohm,1/16W ,J ,1005 ,R/TP		
7	R527	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R540	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R541	RES,CHIP,MAKER	ERHZ0000412	1200 ohm,1/16W ,J ,1005 ,R/TP		
7	R550	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R551	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R552	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R553	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	S500	CONN,SOCKET	ENSY0023301	8 ,ETC , ,0.7 mm,H=1.52,(15*15)		
7	S501	CONN,SOCKET	ENSY0022201	24 ,ETC , , mm,7*7, 1.3M (1/5") Socket Type		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	SW300	CONN,RF SWITCH	ENWY0008401	,SMD , dB,Straight, =3.0, H=1.8, (3.2*3.0) ,; ,0.13MM ,STRAIGHT ,SOCKET ,[empty] ,[empty] ,[empty] , ,		
7	SW301	CONN,RF SWITCH	ENWY0008401	,SMD , dB,Straight, =3.0, H=1.8, (3.2*3.0) ,; ,0.13MM ,STRAIGHT ,SOCKET ,[empty] ,[empty] ,[empty] , ,		
7	U100	IC	EUSY0417801	FBGA ,56 ,ETC ,Fully 1.8V ADmux 1G(mono die) NOR + 256M(128*2) psRAM ,; ,IC,MCP		
7	U102	IC	EUSY0366601	BGA ,210 ,R/TP ,EDGE RF, BB, PM, FM RDS Onechip BB, 216pin, 0.5mm pitch ,; ,IC,Digital Baseband Processor		
7	U200	IC	EUSY0300101	WQFN ,10 PIN,R/TP ,Small package Dual SPDT analog Switch, PB-Free		
7	U201	IC	EUSY0300101	WQFN ,10 PIN,R/TP ,Small package Dual SPDT analog Switch, PB-Free		
7	U202	IC	EUSY0403901	WLCSP ,20 ,R/TP ,Mono Audio Subsystem ,; ,IC,Audio Sub System		
7	U203	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 ,; ,IC,Analog Switch		
7	U204	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 ,; ,IC,Analog Switch		
7	U205	IC	EUSY0388501	DFN ,10 ,R/TP ,Cal Test Mode Single Charger IC for Micro USB ,; ,IC,Charger		
7	U206	IC	EUSY0407501	SSON004 ,4 ,R/TP ,1.8V 150mA Single LDO ,; ,IC,LDO Voltage Regulator		
7	U207	IC	EUSY0340301	uMLP ,10 PIN,R/TP ,typ Rdson 0.4ohm, 1.4X1.8 ,; ,IC,Analog Switch		
7	U208	IC	EUSY0407501	SSON004 ,4 ,R/TP ,1.8V 150mA Single LDO ,; ,IC,LDO Voltage Regulator		
7	U300	RF MODULE,HANDSET	SMRH0005601	MHz, MHz,GSM Quad Tx Module 6x8 ,		
7	U301	IC	EUSY0397001	WLBGA ,42 ,R/TP ,Bluetooth V2.1, 3.0x2.5x0.5t, 0.4pitch ,; ,IC,Bluetooth		
7	U302	RF MODULE,HANDSET	SMRH0005601	MHz, MHz,GSM Quad Tx Module 6x8 ,		
7	U303	IC	EUSY0342401	WQFN16 ,16 PIN,R/TP ,Dual DPDT Analog Switch ,; ,IC,Analog Switch		
7	U400	IC	EUSY0370001	BGA ,100 ,ETC ,8k x16 MoBL ADM Asynchronous Dual-Port SRAM ,; ,IC Assembly		
7	U401	IC	EUSY0396701	128NOR MUX 1,8V + 64psRAM, W6,2 L7,7 H1,0 ,56 ,R/TP , ,; ,IC,MCP		
7	U402	IC	EUSY0366601	BGA ,210 ,R/TP ,EDGE RF, BB, PM, FM RDS Onechip BB, 216pin, 0.5mm pitch ,; ,IC,Digital Baseband Processor		
7	U500	IC	EUSY0344402	QFN ,20 ,R/TP ,4CH,2LDO,3X3 ,; ,IC,Sub PMIC		
7	U501	IC	EUSY0385801	LLP ,12 ,R/TP ,1A ,; ,IC,Charge Pump		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	U502	IC	EUSY0369401	PLP1010 ,4 ,R/TP ,150mA LDO ,; ,IC,LDO Voltage Regulator		
7	U503	IC	EUSY0300601	Micropak ,6 PIN,R/TP ,OR Gate, Pb Free		
7	VA200	VARISTOR	SEVY0010501	5 V, ,SMD , ,; ,5 , ,0.4pF(typ) ,1005 ,[empty] ,[empty] ,R/TP		
7	VA201	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
7	VA204	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA205	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA206	DIODE,TVS	EDTY0008606	DFN-2 ,7.82 V,150 mW,R/TP ,PB-FREE		
7	VA502	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA503	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA505	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA506	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA507	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
7	VA515	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	X100	X-TAL	EXXY0018404	26 MHz,10 PPM,8 pF,40 ohm,SMD ,3.2*2.5*0.6 ,12ppm at -30'C ~ +85'C, C0 1.0pF, C1 3.6fF ,; ,26 ,10PPM ,8 , , ,SMD ,R/TP		
7	X101	X-TAL	EXXY0018701	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,		
7	X400	X-TAL	EXXY0018701	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,		
7	X401	X-TAL	EXXY0018404	26 MHz,10 PPM,8 pF,40 ohm,SMD ,3.2*2.5*0.6 ,12ppm at -30'C ~ +85'C, C0 1.0pF, C1 3.6fF ,; ,26 ,10PPM ,8 , , ,SMD ,R/TP		
7	ZD500	DIODE,TVS	EDTY0009601	SLP1006P2 ,5 V,100 W,R/TP ,1.0x0.6x0.5t ,; , , , , , ,[empty] ,[empty] ,[empty] ,[empty]		
7	ZD501	DIODE,TVS	EDTY0009601	SLP1006P2 ,5 V,100 W,R/TP ,1.0x0.6x0.5t ,; , , , , , ,[empty] ,[empty] ,[empty] ,[empty]		
6	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0134001			
7	LD201	DIODE,LED,CHIP	EDLH0015101	BLUE ,1608 ,R/TP ,Topview LED ,; ,BLUE ,2.7~3.2V ,25mA ,18~45mcd ,465~475nm ,95mW ,[empty] ,[empty] ,2P		
7	LD202	DIODE,LED,CHIP	EDLH0015104	RED ,1608 ,R/TP ,Topview LED ,; ,[empty] ,1.7~2.3V ,25mA ,18~36mcd ,617.5~629.5nm ,60mW ,[empty] ,[empty] ,2P		
7	LD501	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD502	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD503	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD504	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD505	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD506	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD507	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	LD508	DIODE,LED,CHIP	EDLH0015109	White ,1608 ,R/TP ,0.2t ,; ,[empty] ,2.7~3.1V ,25mA ,112~285mcd , ,95mW ,[empty] ,[empty] ,2P		
7	MIC200	MICROPHONE	SUMY0010609	UNIT ,-42 dB,3.76*2.95*1.1 ,mems smd mic ,; , , ,OMNI ,[empty] , ,[empty]		
7	R225	RES,CHIP,MAKER	ERHZ0000411	120 ohm,1/16W ,J ,1005 ,R/TP		
7	R226	RES,CHIP,MAKER	ERHZ0000509	75 ohm,1/16W ,J ,1005 ,R/TP		
7	R53	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R531	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R532	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R533	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R534	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R535	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R536	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R539	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R542	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R543	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R544	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R545	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	R546	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
7	SPFY	PCB,MAIN	SPFY0222401	FR-4 ,0.8 mm,STAGGERED-8 , ,; , , , , , , , , ,		
7	VA510	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA511	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA512	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA513	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		
7	VA514	VARISTOR	SEVY0007301	5 V,<0.15pF ,SMD ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	SJMY00	VIBRATOR,MOTOR	SJMY0007106	3 V,.08 A,10*3.0T ,17mm ,; ,3V , , ,12000 rpm , , , ,		
4	SUSY00	SPEAKER	SUSY0028902	ASSY ,8 ohm,91 dB,1812 mm,3.0T 15mm ,; , , , , , , ,[empty]		
4	SVLM00	LCD MODULE	SVLM0036101	Main ,2.2" ,176*220 ,39.848*52.95*1.9t ,262K ,TFT ,TM ,LG4525B , ,		

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPP00	BATTERY PACK,LI-POLYMER	SBPP0027401	3.7 V,1500 mAh,1 CELL,PRISMATIC ,454261 WW LABEL ,; , , , ,PRISMATIC , , ,BLACK , ,	GRAY	
3	SGDY00	DATA CABLE	SGDY0016701	; ,[empty] ,[empty] ,[empty] ,microUSB[5Pin], USB plug A Type ,BLACK , ,[empty]		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003745	; ,RMS 20mW(0.56V,RMS) ,16Ohm+-2.4Ohm 1KHZ ,116dB+-3dB 1KHZ,3mW ,116dB 1KHZ ,96dB 100HZ ,[empty] ,BLACK ,PLUG ,GB190,5P,230Mesh ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0032201	100-240V ,5060 Hz,5.1 V,0.7 A,CE, GOST ,STA-U12RD, Russia, Cableless ,; , ,5.1V ,0.7A , , ,WALL 2P ,USB ,		
3		ADAPTOR,AC-DC	SSAD0032202	100-240V ,5060 Hz,5.1 V,0.7 A,CB / GOST ,AC-DC ADAPTOR ,; ,90Vac~350Vac ,5.1Vdc ,700mA ,5060 , ,WALL 2P ,USB ,		